THIRD SERIES VOL 54 NUMBER 9 JUNE 1947

THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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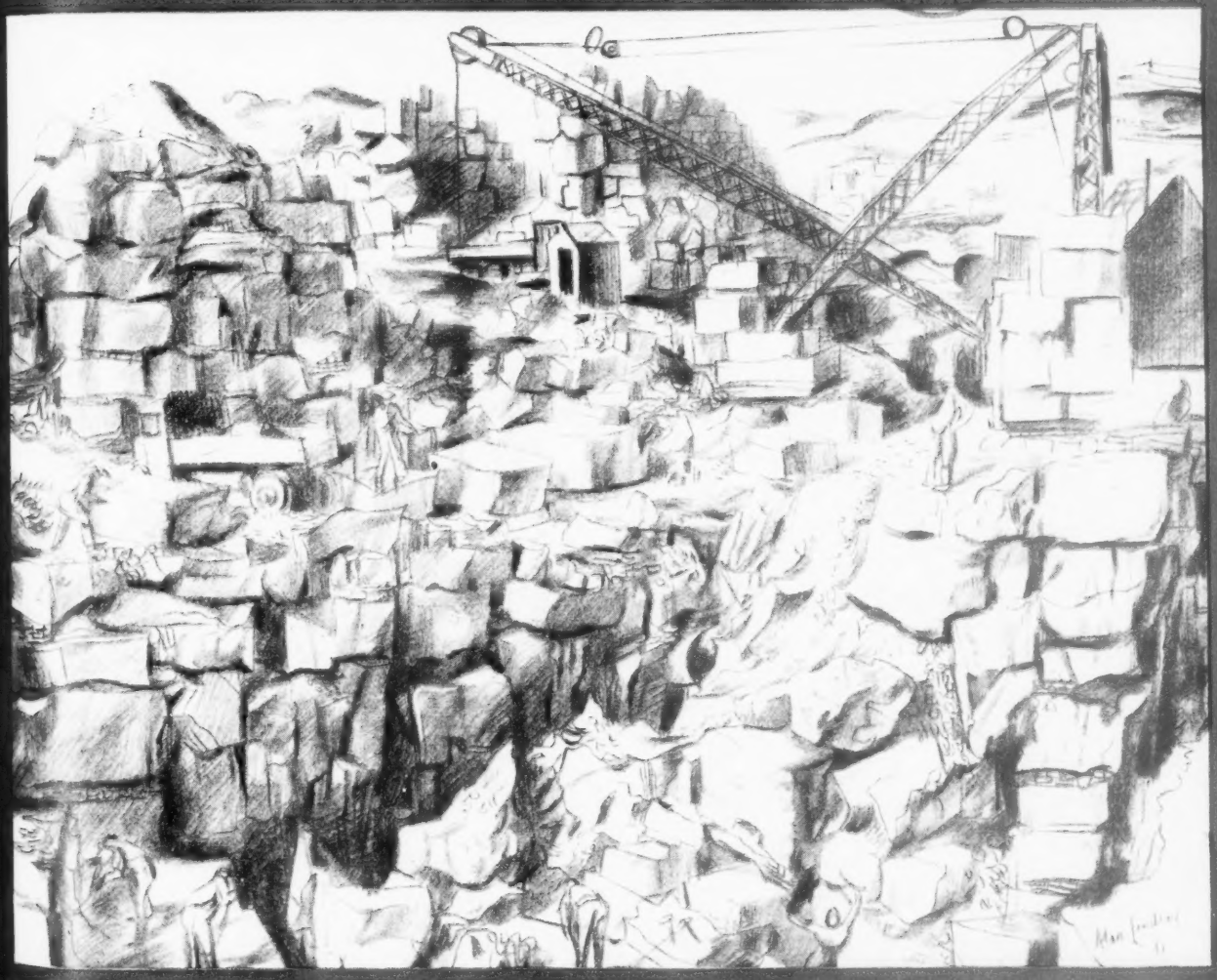

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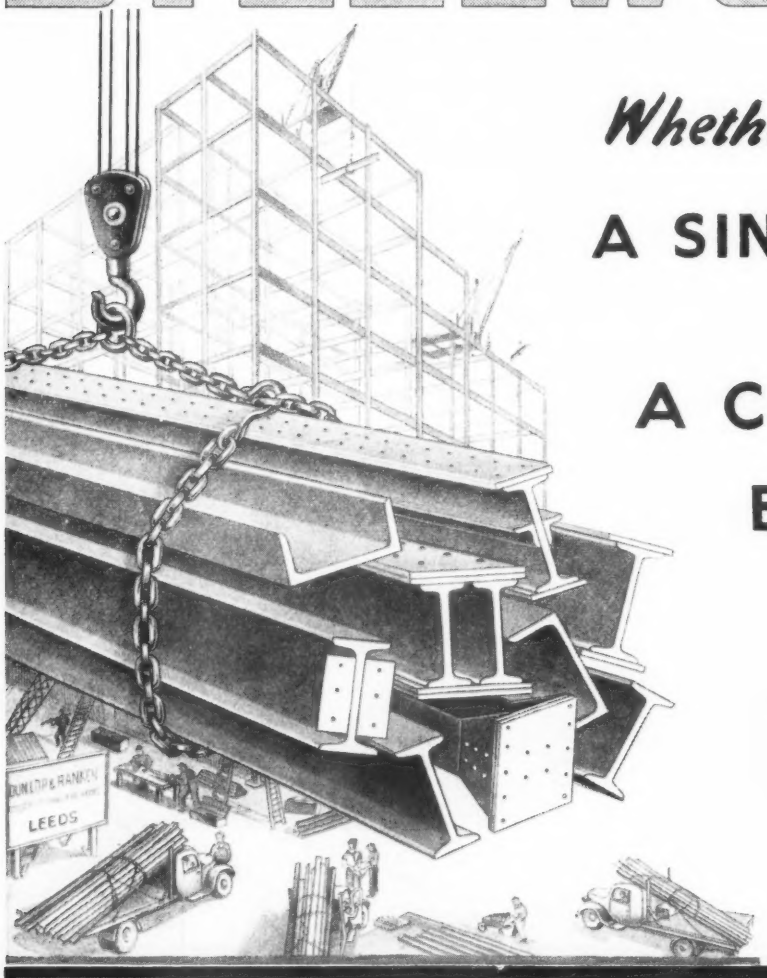

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The Architects' Conference

This number of the JOURNAL has gone to press at the time when the Conference in Dublin is starting. We, therefore, cannot say more than that the success of the Conference is assured, if a record number of applications for Conference membership is indicative of success. More than 400 applications have been received from members in England, Scotland, Eire and Northern Ireland. Local Authorities are well represented by numerous official delegates, mainly architects to the authorities, while in the lists of both official and private architects there are many well-known names. This year there is an official representative of the American Institute of Architects, Mr. Maynard Lyndon, who is accompanied by Mrs. Lyndon.

Those who attended the two earlier—and smaller—conferences in Dublin came away with pleasant recollections of the almost overwhelming hospitality of their Irish colleagues. So far as this present Conference is concerned there is every reason to expect that traditional Irish hospitality has suffered no diminution, nor is ever likely to do so.

The R.I.B.A. Library

From 2 June the Library will stay open an extra hour, from Monday to Friday, i.e., from 10 a.m. to 7 p.m., to make possible its use for research by members after offices have closed. Saturday opening will remain as before, 10 a.m. to 5 p.m.

During *August*, the Reference Library will be closed, but the Periodical Room will remain open daily, 10 a.m. to 5.30 p.m. (Saturdays, 5 p.m.). The Loan Library will be open daily from 12 noon to 2 p.m. only (Saturdays, 12 noon to 1 p.m.). During this period, however, books will continue to be issued by post.

The two back rooms in the adjoining building, No. 68, have now been opened, and are available as study rooms; the smaller one, however, will later be required as a work room in connection with the Drawings and Prints collection.

A suggestion has been received from a member that a Library Group should be formed, to enable those interested in old books and engravings to meet one another. The Librarian would be glad to hear from any members who would be prepared to co-operate. A meeting will be held early in July to go further into the matter.

Physical Society Acoustics Group

The Acoustics Group of the Physical Society was formed in February 1947 to provide an opportunity for the varied types of workers engaged on acoustical problems to meet and discuss the scientific and technical implications of their work. An essential function of the Group is to provide its members with a general view of all types of acoustical investigation proceeding in the country, whether musical, architectural, physiological, psychological, as well as physical and electrical.

The Group operates under the authority of the Council of the Physical Society. Membership is open both to members of the Society and also to non-members. Those who are members of one of several approved societies, including the R.I.B.A., can join at a special reduced subscription of five shillings per annum. The Chairman this year is Mr. H. L. Kirke, M.I.E.E., and the Joint Honorary Secretaries, Mr. W. A. Allen, B.Arch., A.R.I.B.A., and Mr. A. T. Pickles, O.B.E., M.A. Correspondence should be addressed to the Honorary Secretaries of the Group at the Physical Society, 1 Lowther Gardens, Prince Consort Road, S.W.7.

Architects who have special interest in acoustics may like to avail themselves of the opportunity which the creation of this Group affords. Apart from the discussion of technical problems with various specialists which will take place at meetings of the Group, it is hoped to circulate to members reprints of papers read before other societies and institutions dealing with acoustics.

A.A. Council 1947-48

The new Council of the Architectural Association for the forthcoming session is: *President*, Howard Robertson, M.C. [*F*], S.A.D.G.; *Vice-Presidents*, R. E. Enthoven [*F*], Eric L. Bird, M.C. [*A*]; *Hon. Secretary*, Anthony M. Chitty, M.A. [*F*], A.M.T.P.I.; *Hon. Treasurer*, Henry Braddock [*A*]; *Hon. Editor*, Hugh Casson, M.A. [*A*]; *Hon. Librarian*, S. E. T. Cusdin, O.B.E. [*A*]; *Past President*, Graham Dawbarn, M.A. [*F*]; *Ordinary Members of Council*, A. R. F. Anderson [*F*], John R. Atkinson [*A*], Mrs. Anthony Cox [*A*], F. E. B. MacManus [*F*], Lionel G. Pearson [*F*], Anthony Pott [*A*], The Hon. Godfrey Samuel, M.A. [*F*], Peter F. Shepheard, B.Arch. [*A*], A.M.T.P.I., Bryan Westwood [*A*], and Hilton Wright [*A*].

The Greater London Plan

The Minister of Town and Country Planning has issued a Memorandum on the Report of the Advisory Committee for London Regional Planning. This Committee was set up by the Minister to advise him on procedure for putting Professor Sir Patrick Abercrombie's Plan into effect. The Committee's Report has been published and this Memorandum states the Minister's decisions on their recommendations. The Committee made several proposals which in certain ways varied the proposals of the original Plan. Some of these the Minister has accepted; others he has rejected. For those who may suspect that Sir Patrick Abercrombie's original scheme is being 'whittled down' it can be stated that such fears are groundless. For instance, the Advisory Committee proposed the accommodation within the Green Belt of nearly 160,000 more people than was suggested in the Plan. This the Minister has declined to accept. The Memorandum states that it is the Minister's intention to prepare a plan to show the land around London which, as green belt or green wedges, must be preserved from development; this will be based upon the Greater London Plan proposals. Sir Patrick Abercrombie recognized when preparing his Plan that some use of the Green Belt to meet urgent housing needs in the early post-war years would be necessary and, accordingly, proposed that the total population to be so dealt with should be limited to 125,000: the Minister is at present prepared to sanction a figure between 100,000 and 110,000, but some further development more nearly approximating to Sir Patrick Abercrombie's figures may be unavoidable.

The principal decision is to reduce the number of New Towns to be built in favour of *adding to existing centres of population*. The Minister has now decided to proceed with the New Towns schemes for Stevenage (Herts.), Hemel Hempstead, Harlow and Crawley-Three Bridges. He has reserved decision on Meopham and Laindon-Pitsea. Six of the other sites originally proposed have been abandoned. Instead, the Minister is considering the extension of Newbury, Aylesbury, Bletchley, Chelmsford, Witham, Basingstoke and Ashford. Most of these extensions are substantial, varying from 50 per cent to 300 per cent. Small extensions at Tonbridge, Horsham and Sawston are also proposed. These recommendations are being further examined.

It is interesting to note that in discussing the maintenance of a general overall view of developments in the region the Memorandum says, 'In the long-term, success in restraining the growth of population in the region will depend upon the planning and development of the country as a whole.' Members may recollect that a special committee of the R.I.B.A. during the war years prepared a scheme for a National Plan for the whole country. The R.I.B.A. plan was not enthusiastically welcomed by 'the powers', and it is interesting to note that the need for such a plan is now being realized.

'Enterprise Scotland'

The Scottish successor to 'Britain Can Make It' is to be opened at the Royal Scottish Museum, Edinburgh, from the 25 August to 30 September. It will follow the same lines as 'Britain Can Make It' in being a selected exhibition but will, of course, pay special attention to Scottish industries and crafts. It will be divided into four sections: First, *Scotland Yesterday*, a symbolic treatment of the culture, crafts and traditions of the past; second, *The Country*, attracting visitors from abroad to the famous natural beauties of Scotland which Sir Stafford Cripps described recently at a press conference on the exhibition as a 'valuable invisible export'; third, *Scotland Today*, the centre of the exhibition, which is sub-divided into ship-building, printing, textiles and consumer goods; and fourth, *Scotland Tomorrow*, which has been arranged in conjunction with the Department of Health for Scotland and is intended to show how the planning of industrial estates and community centres has as its aim the benefit of the individual as well as of the country as a whole. The Chief Architect is Mr. Basil Spence [*A*] and the Chief Designer Mr. James Gardner. A feature of the display will be a series of furnished rooms similar to those which were so popular at 'Britain Can Make It'. The four art schools and colleges of Scotland are co-operating in a special display of students' work.

Mr. Anthony Chitty [*F*] and the President of the Turkish Republic at the exhibition of British Town Planning and Housing on view in Ankara

The National House-Builders' Registration Council

Before the war the National House-Builders' Registration Council was formed with the aim of improving the standards of private enterprise housing. It operated a scheme for registering house builders and certifying houses built by them which were in accordance with a specification of workmanship and materials drawn up by the Council. The movement started among the house builders themselves, the more reputable of whom wanted to see established standards of quality in houses built for sale. A great deal of verbal mud had been thrown at speculative builders in general and, while some of the less reputable deserved much that was said, many were anxious to see that quality was maintained and that the public should be aided to distinguish between good and bad building. The scheme received the warm support of the Royal Institute as well as the unofficial support of government departments.

Just before the war the Council received statutory recognition under Section 5 (1) of the Building Societies' Act, 1939. It has now recommenced activity, and the first full meeting since the war was held at the R.I.B.A. on 19 March. Meetings of the General Purposes and Specification Committees have also been held. Purchasers of privately built houses may once more look to the Registration Council for a guarantee of sound standards in workmanship and materials backed by the Council's certificate.

Among the officers and members of the Council are Sir Giles Gilbert Scott, O.M., R.A. [*F*], Hon. Vice-President, Mr. Stanley C. Ramsey [*F*], Vice-Chairman, Lt.-Col. H. P. Cart de Lafontaine, O.B.E. [*F*], C. H. James, A.R.A. [*F*], G. A. Jellicoe [*F*] and G. Langley Taylor [*F*]. Among the observers from Government Departments are Mr. S. Pointon Taylor [*F*], Ministry of Health, and Mr. C. J. Mole, O.B.E., M.V.O. [*F*], Ministry of Works.

On the Cover

'The Matrix of Architecture'. A Portland stone quarry, specially drawn for the R.I.B.A. JOURNAL by Alan Lindsay. At the time the drawing was made, stone was being quarried for the Roosevelt Memorial.

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HARLAND Michael Anthony
HICKS Tregarthen Charles Glanville
HIGGS Ronald William
HOBDAY Harold Herbert Jordain
HOOPER Edwin Morris
INGLIS Colin William Anderson
JOHNS William Edward Field
JOHNSTON John Brown
JONES John Rhagfyr
KELLY Wilfrid Edwin
LANCHESTER Henry Robert
LE ROSSIGNOL John Augustin
LEVY Albert Phineas
LEWIS Peter Humphrey
LOCKE Bertrand
MCINTYRE Edward Mackie
MCQUEEN Alastair Norman Leigh
MANNING Oliver David George
MASON Owen John Currie
MATTHEWS Ronald Hedley
MEDCALF Albert Rupert John
MORLEY Cyril Savage
PATON John Charles
PERRYER Henry Richard Douglas
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WESTCOTT John Shorland
WHEELER John
WILSON Harry Ernest
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Licentiates

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BETHUNE-WILLIAMS Denis
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WARREN Edward Alan
WITHERS Kenneth George

Students

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ARBIB John Henry Vita
ARCHER John Philip
ARNOLD Godfrey William
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BOUSTEAD Colin Joseph Edward
BOZIER George Alfred
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CARIS Alfred Charles
CLARK Fred
CLAYE Derek Hugh
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COWAN Thomas
DIMMOCK William Herbert
DUNCAN John Bryce
EDWARDS Percy Charles
ELLIOTT John Hardyman
FOGARTY Oswald Joseph
FOLEY Joseph
GAYTON James Donald
GILES Malcolm John
GOAD Leon Reginald
GOOD Walter Frank
GORDON Robert Dighton
HAMMOND George Noel
HARPER Leslie Kenneth
HARRISON George
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TODD Philip Matthew
TOMLINSON James Bryan
TRANMER Eric William
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WALKER James Beedham

WALLIS Charles James
WEAR Eric Frederick
WEBB Charles Herbert
WHITE Eric Ronald
WILKINS John Philip
WILLIAMSON Eric
WILSON Humphrey Peter Bowstead
WISEMAN Reginald Hadley
WOOD Charles Altham
WOODCOCK William Robertson
WOODNOTH Hubert Wills

Members of the Staff

BUSH William Charles
ROBERTSON Robert Wallace Henderson

The Council have decided, on the advice of their architect Mr. G. Grey Wornum [*F*], that the Royal Institute's War Memorial shall take the form of names cut in stone on each side of the walls at the foot of the main staircase by the entrance to the Foyer. The names of the Honorary Associates, Fellows and Associates who lost their lives will be on the left-hand side and the names of Licentiates, Students and Members of the Staff on the right-hand side. Above each list of names is to be an inscription, 'In memory of Members, Students and Staff who lost their lives in the War 1939-45'. The inscription will be in 2 in. letters coloured in gilt and the names in 1¼ in. letters, the subtitles at the heads of lists being in different colours. Initials only will be given, not christian names, and the names will be carved straight across the panels and not arranged in columns.

Mr. Wornum has advised the Council that the existing stone is not suitable for cutting and that it should be replaced with panels of San Stefano Roman stone. These are to be carved by Mr. Percy Smith who has been responsible for the lettering of the names of Past Presidents and Royal Gold Medallists in the entrance hall and the work will be done in his studio.

It is hoped to have the memorial ready for unveiling early in the next session. Meanwhile the lists of names are being very carefully checked. During the war it was not always easy to discover whether a member was on war service at the time of his death or whether the death of a member not in the forces was due to enemy action; also in the case of members reported missing, it is not always known whether death has been officially presumed. The list of names given on this page is as accurate as Royal Institute records can make it. *It is being published here so that individual members can draw attention to mistakes or omissions. Any member who can give any such information is asked to write to the Secretary, R.I.B.A., without delay.* Copies of the list have also been sent to the Dominions Allied Societies.

Overseas Appointments for Architects

THE APPOINTMENTS DEPARTMENT of the Institute are receiving numerous enquiries about the prospects of architectural employment in various parts of the Commonwealth. The enquiries range from the direct question whether the Department know of any architectural appointments—say—in Southern Rhodesia, open to the enquirer; to a request for full information (by return of post) on the hours of sunshine, inches of rainfall, degrees of temperature, educational facilities, social amenities and dietetic possibilities in the different provinces or states of a Dominion. (A member has even had the foresight to ask whether the electric current in a certain town in Australia was suitable to heat his electric kettle and iron and generate his razor.)

In the R.I.B.A. Kalendar for 1939–40, members contemplating applying for appointments overseas were recommended 'to communicate with the Secretary, R.I.B.A., who will supply them with any available information respecting conditions of employment, cost of living, climatic conditions, etc.' Alas! only the 'climatic conditions' have remained unaffected by the war (at least, enlightened scientific opinion assures us that the atom bomb has no influence on the weather), and the information that the Secretary had available and was willing to supply then is completely out of date today: moreover, in the 'etc.' must now be included such simple things as the Treasury regulations on the transfer of sterling; an endless variety of form-filling; and, of course, the obtaining of a passage to the desired destination.

Anxious as the Department is to collect, collate and supply as comprehensive information as possible on all matters relating to the employment and conditions of service of architects in all parts of the world, it would require a substantial and expensive reinforcement of the present staff to deal promptly and accurately with all these enquiries. For the guidance, however, of those members contemplating emigration they have given us the following notes:

General
As a rule all official appointments, whether in the Dominions or the Colonies, which are open to applicants from the United Kingdom, are advertised in the weekly professional press, THE TIMES and the DAILY TELEGRAPH. And although, occasionally, the Department receive copies of the advertisements before publication, the Institute has no say in the selection of candidates: the posts are, in fact, recruited by advertisement.

From time to time architects in private practice overseas ask the Institute for the names of members who might be willing to take a salaried post—sometimes, but not often, with prospects of a partnership—in their offices. Members who wish their names to be submitted in response to these requests, should write to the Secretary, stating the countries in which they are specially interested; whether married or single; the minimum salary required; and the usual particulars of age, qualifications and experience.

Australia
Unless engaged or nominated by a resident in that country, members seeking employment in Australia must complete the necessary forms in duplicate, which are obtainable from Australia House, London, W.C.2.

Canada
The offices of the High Commissioner in London have no machinery to help applicants in this country to obtain employment in Canada. General advice and information will be given at Ontario House, 13 Charles Street, S.W.1.

New Zealand
Members should write giving full information about themselves to the Director of National Employment Service, Wellington, New Zealand. This is an organization specially formed for the purpose.

South Africa
Address your enquiries to the London Emigration Committee, 39 Princes Gate, S.W.7.

Colonies
There is usually a list of outstanding vacancies for architects in the Colonies. Information about these may be obtained from the Director of Recruitment (Colonial Service), 15 Victoria Street, London, S.W.1.

U.S.A. and the Continent
The Appointments Department regret that they have not sufficiently authentic knowledge to offer any advice or answer any questions on the prospects of employment for members in the United States or the Continent.

Overseas Allied Societies
We print below the names and addresses of the Secretaries and Registrars of the Allied Societies, for the benefit of members who may wish to communicate direct with them on matters pertaining to the local laws and regulations governing the practice of architecture.

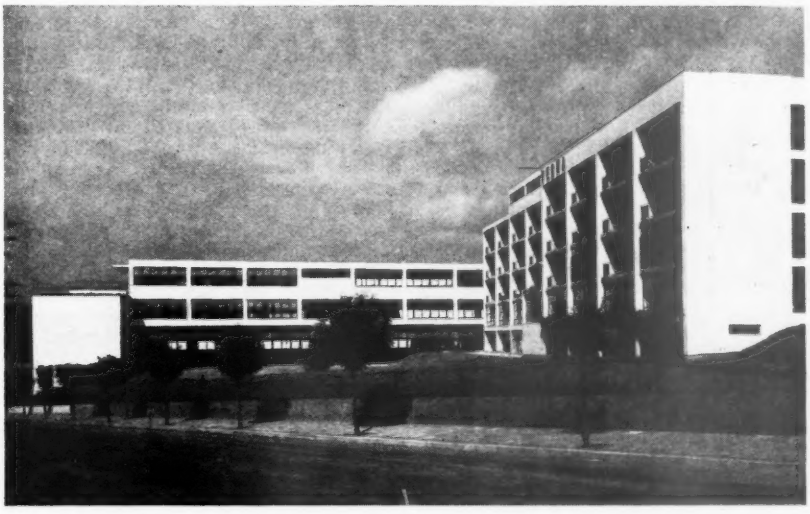
Australia. John L. Zillman, Esq., Acting Secretary of the Royal Australian Institute of Architects, 16, Barrack Street, Sydney, N.S.W., Australia.

Canada. Miss Anne M. Cory, Executive Secretary of the Royal Architectural Institute of Canada, Room 205, 74 King Street East, Toronto, 2, Ontario, Canada.

New Zealand. D. G. Johnston, Esq., Secretary of the New Zealand Institute of Architects, P.O. Box 1527, Wellington, New Zealand.

South Africa. J. S. Lewis, Esq., Registrar of the Institute of South African Architects, Walter Wise Building, P.O. Box 7322, Johannesburg, South Africa.

Southern Rhodesia. E. P. Venables, Esq., Secretary of the Institute of Southern Rhodesian Architects, P.O. Box 1129, Salisbury, Southern Rhodesia.



Photographs from the Exhibition of Czechoslovak Architecture

THE EXHIBITION of historical, pre-war and current Czechoslovak architecture in the Henry Florence Hall was opened on 10 June by the President R.I.B.A., Sir Lancelot Keay, and the Czechoslovak Ambassador, Dr. Kratochvil. At the time of our going to press the exhibition had not arrived in this country, and we are therefore able to do no more than illustrate a few photographs of recent Czechoslovak architecture which arrived earlier. The exhibition begins with a short historical survey of the architecture of Bohemia, Moravia and Slovakia, and continues with a section dealing with modern Czechoslovak architecture between the two wars. The chief feature of the exhibition is the Two-Year Plan for reconstruction. The exhibition has been designed by Mr. J. Krejcar; it closes on 24 June.

Above: shops and offices in Prague by Professor O. Starý. Top right: model of flats at Most by V. Hilský and E. Linhart. Centre: flats at Brno by J. Polásek and schools at Brno by B. Fuchs and J. Polásek

'. . . The Order of Bevan with clasp . . .'

Architects to Public Authorities

Informal lecture-discussion in the series on Office Organization at the R.I.B.A. on 27 March 1947

Speakers: Hubert Bennett [*F*], D. E. E. Gibson [*A*] and Kenneth Campbell [*A*]
C. H. Aslin [*F*] in the chair

The Chairman: I ought first of all to apologize, because naturally you were expecting to find Mr. R. H. Matthew, the architect to the London County Council, in the chair tonight. He, unfortunately, is ill, and I have taken his place in an endeavour to conduct the meeting as he would have done. It is perfectly clear from the numbers here that you expect an illuminating and interesting meeting, and there seems to be little doubt that you will certainly get it.

It almost seems an impertinence in me to introduce the speakers, because most people here know something about them. As you doubtless know, Mr. Hubert Bennett is architect to the West Riding County Council. He has been a lot of other things besides: he is a Manchester School of Architecture product: he won quite a lot of prizes in his youth, including the Soane Medallion, Neale Bursary and Arthur Cates Prize. He also had experience of teaching on the staff of the Leeds School of Architecture, and at the Regent Street Polytechnic. During the war he served in the Army, and in 1943 he went to Southampton in order to try to produce a little order out of the chaos of the bombing. He left there after a comparatively short time, and is now ensconced in Yorkshire.

Mr. D. E. E. Gibson, who is next in order to speak, I think most people know, is the city architect of Coventry. He also has had a varied career, has been in private practice, was a lecturer at Liverpool University, was connected with the Building Research Station, and has been with a county council in that he was deputy architect to the Isle of Ely County Council. I think possibly his city is farther advanced with plans for reconstruction than almost any other city in the country.

Mr. Kenneth Campbell (whom I met in the Midlands during the war) has been in private practice, and is now with the Miners' Welfare Commission. There you have three people eminently qualified to talk on the subjects selected.

Mr. Bennett: Building nowadays is a far more complex matter than it was in the past, and no one person can master all the architectural and technical knowledge required in the planning, designing and construction of modern public buildings. There are, therefore, two alternatives open to the profession under these circumstances. One, which private architects usually take, is to engage consultants to carry out the specialist work for which the architect himself is not technically equipped: the other alternative, which the larger public authorities adopt, by reason of the large amount of work passing through their departments, is the one of engaging highly trained and experienced technical assistants to work with the architects in collaboration. It is considered, therefore, that an organization of highly trained staff of every category can produce buildings that are well designed and with every amenity. I do feel, however, that a system ought to be very seriously considered by the profession whereby the outstanding designers of today can work in collaboration with the larger public authorities.

In the time at my disposal tonight I am afraid I can give you little more than a brief survey of the responsibilities and duties of a County Architect's Department. For one and a half years I have been the chief official of one of the largest county areas in the country, covering over a million and one half acres and having a population of one and a half million people. I soon realized that the previously existing establishments of the County Architect's Department and the Education Architect's section were completely inadequate to deal with the architectural duties assigned to them by the County Council and the Standing Joint Committee—the Standing Joint Committee being responsible for court houses, and police buildings. Today there is, not only in my area but in many other areas I assume, something like twenty years' leeway to make up in the modernization of hundreds of county properties. There lies ahead a vast volume of new construction. Here, then, is an architectural opportunity, one which I think is long overdue, and so far as I am concerned it is not going to be a half and half affair.

In the West Riding the responsibility of the County Architect is that of the direction and supervision of the work and activity of the Department for which I am responsible to the county Finance Committee. Such duties include the design and construction of hospitals, schools, court houses, police stations, clinics and other buildings, also responsibility for the maintenance of all properties occupied or owned by the County Council. In order to give you some idea of the property under the supervision of the Department, the number and types of buildings are approximately as follows: for the Education Committee there are over 1,100 primary schools, 124 secondary modern schools, 49 grammar schools, and 11 technical colleges: there are also teachers' training colleges, and remand homes. For the Public Health and Welfare Committee there are 20 large public welfare institutions, 3 county-owned sanatoria, 3 county hospitals, 140 welfare clinics, and several hundred other similar buildings for that committee. For the Standing Joint Committee there are the constabulary headquarters, C.I.D. buildings, training college for police, and several hundred court houses and police stations, together with 1,000 police houses. For the Mental Deficiency Act Committee there are 4 mental institutions. For the General Purposes Committee there are the County Hall, the County Medical Building, and 40 other administration buildings in the centre of the area. For another special committee we have a mental hospital.

Now for the immediate building programme before the Department. About two years ago the various Standing Committees had prepared schedules of works of priority amounting to a figure in excess of £5,000,000. These projects have been considered very carefully, and a summary of building works and repairs to be completed or under construction by 31 March 1948 amounts to approximately £1,500,000. Of that figure something like £700,000 is concerned with the Education Committee, and £500,000 with Public Health. To look at it another way, the programme approximately consists of £500,000 worth of new construction to be carried out within the next twelve months, £700,000 worth in the way of adaptations of existing properties, and the whole of the latter work comprises jobs not exceeding, say, £20,000 each. There is also a figure of £300,000 for annual maintenance and renovations. That figure was actually exceeded last year.

Among the first new buildings that will be going up this year is a new County

Architects' building. It is a building to house a new establishment of between 200 and 250 staff. The reason this building has come first in the building programme is that it became an impossibility to organize the staff which is at present housed in five different buildings scattered up to half a mile apart.

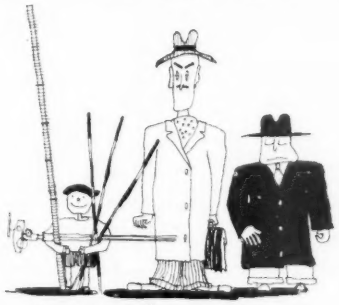
Also in preparation is a central depot for a new works organization. This organization will deal with all the maintenance work and small adaptations within seven miles of the administrative centre. The amount of work in that area is calculated at £150,000 a year. In the immediate area of the County Hall there are 130 schools alone. Sixteen new schools are on the board or going to tender shortly, at varying costs between £30,000 and £130,000. At the same time, a number of well-known English homes are being acquired and adapted—Wentworth Woodhouse as a national college for physical training, Bretton Hall a college for music, arts and drama, Ingleborough and Woollmey Hall teachers' training colleges—and many others.

Just a word at this stage on the future programme. In dealing with the future works, the programme of one committee alone—the Education Committee—will provide a school re-development plan of approximately £50,000,000, that is assuming the Education Act remains as it is. To implement the reforms of the 1944 Act at an average annual expenditure of £2,000,000 will require 25 years to complete the programme.

I should like to say a word or two on committee procedure—rather a dry subject, and it is not understood too well by the private architects. The administrative procedure, which can only be dealt with most briefly, explains the reason for the slow progress made from the commencement to the completing of works authorized by the various committees of a local authority. Private architects commissioned by local authorities are sometimes discouraged by the time lag which elapses between the placing of a commission and the letting of a tender, and they fail to realize all the steps rightly to be taken to prevent the unauthorized expenditure of public money. It may come as a surprise to those not acquainted with local government to learn that no standing committee of a county council can spend more than £50 without the authority of the Finance Committee. Even though a scheme reaches the Finance Committee it does not mean to say it is necessarily going to be approved. Should the Finance Committee require any amendment of the scheme which thereby affects the estimate, the whole procedure has to be gone through again. On the average, there are five committees through which every job must go, before consideration by the County Council. The Finance Committee normally meets only once in three months, and if you remember this you will understand why the delay in accepting a tender of over £50 can take place. When a scheme has been approved by the County Council the sketch plans, estimates and amounts and types of controlled materials have to be submitted to the appropriate Ministry. If the Ministry requires any alteration which increases the estimate the matter has again to be referred to the whole of the committees. From this stage we pass to bye-laws and town planning, and it is not until the Ministry's approval has been received that working drawings are actually commenced.

I should like to deal now with organization within the office. In dealing with an organization capable of carrying out between two and three million pounds per annum, the department has been divided as follows: the main centre of the whole office is with the constructional division, and that is comprised of the professional and technical staff. They are divided into six sections, five of which are principally concerned with the administrative work of the various committees, while the sixth is responsible for the co-ordination of all architectural and technical matters. Each section is under the control of an Assistant County Architect.

The educational programme has three



'. . . site survey staff . . .'

sections: it is divided geographically because the area is so large; Public Health and Welfare a section, Standing Joint a section, with planning and design another section. Within this division are all the engineering and surveying staff concerned with engineering services required in buildings and the collection of all site survey data, comprising heating and ventilating engineers, structural engineers, electrical engineers, site survey staff, and mining staff. We have to have mining staff because two-thirds of the territory is on coal, and in certain cases there are up to 15 seams of coal below our building sites.

The work of the building maintenance outside the administrative centre is carried out by building inspectors. The area is divided into sixteen areas, and they are related closely to the divisional executive areas of the Education Committee.

Cinematograph and stage play regulations are also the responsibility of the department with regard to 200 cinemas, and it is necessary to report annually regarding electrical and structural work and checking of plans.

The establishment of this central division at the present time is 132.

Supporting this central division there is the Quantities and Measuring Division with a principal Quantity Surveyor and senior assistant quantity surveyors, dealing in detail with each committee on the County Council. There is a group of assistant and junior assistant quantity surveyors, pooled in order that the work of priority should receive attention. The establishment of the quantity and measuring division is 17.

The Clerical and General Division is organized into three sections, one dealing with general clerical work, one accountancy and a section comprising general clerical and accounting in the new direct works organization. The general clerical section, which includes clerks, clerk typists, and shorthand typists, is responsible for the collection of statistics, the compilation of records in respect of staff and general matters, general clerical administration duties, stationery supplies, office equipment, reports, schedules, quantities, specifications, and official orders.

The Accounts Section is responsible for the checking and verification of all accounts for the West Riding County Treasurer, the payment of salaries and other matters appertaining thereto.

The Clerical and Accounts Section of the direct Works Organization is mainly connected with the costings, time sheets and materials, and store-keeping. The establishment of the clerical and general division is 46.

In dividing the organization as set out, with a central technical and professional staff under central control, and not divided into separate sections, I think you will agree it is not a method which is adopted in many other local authorities. Personally, I believe the investigation and planning research work and any designing at all should always be the responsibility of the chief designer or the design staff under his direction. This means that the possibility of works for the various committees being designed under separate groups in varying standards, some good and some bad, cannot operate.

One of the most vitally important points is the closest possible collaboration from the preliminary sketch drawings to the completion of working drawings and specifications between the design staff and the assistant county architects who are mainly responsible to the Chief Official for the administration work of the various committees.

In conclusion, let me stress again the necessity for a strong central architectural team of highly trained and experienced staff, architects, engineers, and surveyors, because I feel that with an organization like that we ought to be able to produce work which is equal to the best contemporary work in this country and abroad.

Mr. Gibson: When I was first asked to talk about office organization to the R.I.B.A. I declined, because I felt I did not know very much about organization, and what I did know of it was rather the sort of thing I did not very much like myself. However, I was persuaded to talk about it, and I think I should like to start with my own experience as a young architect after my training. I remember well one private office where, when the chief went out on a job, all the work stopped. At another office the same thing happened: there it was usually cricket

'. . . cricket with T-squares . . .'

with T-squares down the office corridor. At another office, and this one was in America, there was one beautiful piece of heaven where there were libraries and all the designing was done, and another absolute hell of a place where all the tracing and working drawings were done.

That was the sort of thing that had been happening to me, and when I did get a chance of having a department in which I was going to work and have some ideas myself, I thought it must at any rate be a pleasant place to live in, not only for me, but for the people who were going to work with me, and if we have any organization in our office, it is really to try to get such conditions and a hope of getting the work going reasonably well also.

What did appeal to me when I had the chance of going to Coventry was that it was a very open commission: it was to form a new department. I think there is a great advantage in that, because they did not know what to expect, and apart from that the commission was to work in the general interests of the city, and I sometimes use that in many ways to justify things that we do.

To begin with, we found Coventry a great problem. Many things were wrong. Planning as we know it today did not exist, and having so much to do to catch up with a city that had doubled its size in a few years, we felt that planning was very important. The people in the office began to be very interested in it, and to try and persuade the City Council themselves to be interested in it. We made models and gave lectures, not only to the people and to schools, but to the Councillors themselves, and when the opportunity came, after the bombing, it was fairly natural that we were given the powers that we had longed to have. So we are one of those fortunate cities where I think we have the important reins in our hands.

We have many other virtues in Coventry. All our officers, with the exception of the Town Clerk, are on the same salary basis, and in many ways we have an opportunity that does not exist in all local authority offices. First, let me say that I think we, as a county borough council, have the cream of everything—we have the cream of the county's work, and also the towns. We have schools and hospitals, baths, markets, power stations, gas works, garages, restaurants, waterworks, public conveniences (which we are now trying to get above ground and not below as they very often were for some peculiar reason), and we have scope in designing lamp standards, street furniture and shops that the Council owns; almost everything that an architect could wish to design, we have the opportunity to design.

The work in our office is divided into rather loose groups. We have one for planning development, one for housing, one for schools, and one for the other committees. If the National Health Bill takes a certain turn we may find the new hospitals we have to build are such big things that we may have to have a group specially for hospitals; and one for quantity surveyors. We have two heating engineers, and we have a section (unfortunately) for building licensing, which we do not like at all, but we do it. Incidentally, we are not using any architects for building licensing. We are using clerks of works and clerical staff, and keeping our architects for the things for which they are more valuable.

'. . . they do their own correspondence . . .'

We did start out with the idea of having our own structural engineers and those sorts of people. In an authority like ours where you have an Engineer's Department, a Medical Officer's Department, a Legal Department, and so on, the ideal thing is to make use of them. We are working that now as a policy. We had an electrical engineer; he left and I have not replaced him, because we are now using our electricity department to do our electrical work and specifications for us. Similarly, we are using our Engineer's Department for concrete and steel designs. They did a very nice spiral staircase for us, and are very competent. There seems no reason to enlarge the department if you can get help from your colleagues in that way.

We try to make all our staff as self-dependent and complete as we can. We have a number of small rather loose groups, each with a senior assistant, one or two assistants, and a junior, and they are responsible for a job. They do their own correspondence, have their own clerk of works to look after the job for them, and are quite responsible; in that way they are really architects on their own, and should get the satisfaction that they want, unlike some offices where the architectural staff rarely get out and rarely see what is being done.

We have one or two ideas, precautions if you like; things do go wrong sometimes, especially where you get new people coming into the service, and we have a simple idea of putting in each job file a note of instructions, so that anybody ought to be able to do a job without going wrong. For instance, we make sure the job has Committee approval, that the land belongs to the Committee, that there is electricity in the street, and that there are sewers available.

Costing worries me a little. I did not consider the architectural charges for jobs until the City Treasurer asked me what system should we use for costing. We have adopted a system which seems to work quite well, and I would like to hear what some of you say about it. What happens is that our staff keep time sheets of the time they spend on different committees' work and jobs. The clerical section take those over eventually, add them up, and add them to the cost of the assistant's salary, and overheads to cover costs of heating and lighting, and my salary and my deputy's (who, presumably, do not do any of the work!), and the proportionate result goes to each committee.

You may spend quite a lot of time on an important but small job. I remember one public convenience, our first job, which had to be done again because of a change in the site. The costs were very high, almost as high as the job. Conversely, very big jobs' costs were very low compared with the normal fees that would have to be paid.

To begin with, one gets a little trouble with officials, especially with trading departments who try to make a profit. They forget the big jobs do not cost a lot. It seems it is a perfectly fair system, a workable one, and now all the chief officials understand it and are quite happy, and all the committees understand it. But perhaps some of you have other methods of costing that I personally would be interested to hear of.

As to our clerical section, our policy is that all possible clerical work should be done by clerical staff and not by architects. We believe that the clerical staff should never occupy more senior positions than the chief architects on the staff. That seems to apply in some departments and has not always happy results.

We have an idea that is beginning to operate now, a sort of lend-lease exchange system. With our Chairman here, for instance, we got his department's ideas on schools and the latest things they have, and we send back to them our latest ideas on housing. The same thing happens with Hamlyn and Leslie Martin of the L.M.S. and one or two other offices. It seems to me a thing that could be easily developed, and would save quite a lot of time. It seems silly for everyone to do the same things: we ought to use each other's ideas wherever they come from.

I was rather shocked to hear the size of Hubert Bennett's staff—200–250. I think we have about 25 architectural staff. Although we know that with all the work to be done one must have colossal staffs, I personally would rather keep the department small, and have two or three separate departments, rather than one huge one, but that is only my own view. In Coventry

'. . . I like to be away . . .'

we have successfully avoided taking over the Public Works Department and House Management. I say we are architects and not building contractors, and I do not know a lot about joinery machinery and that sort of thing, and therefore I should not be asked to look after it, and although there are often attempts to put it all together, we have successfully avoided it.

I should very much regret the day when I was an administrator and not be able to see what goes on in the office, and not able to do some of the rather nice jobs that do come along and that one likes to do oneself. I like to have my own drawing board and be away from everyone for a day or two, when there is something I like to do myself.

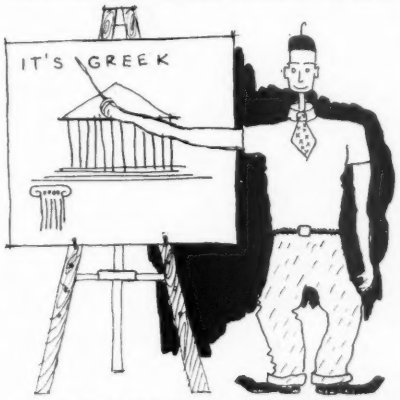
We are trying now to use our private architects in the town to act as a sort of safety valve instead of building up a terrific staff to do all this outstanding work. I think probably as official architects we would do a lot more of that if we were sure the work went where it ought to go. If the R.I.B.A. could find a way to call upon architects for schools, for instance, and those schools would go to the right sort of architect, one would be very much more agreeable to put these things out. At present, we would rather keep the important jobs in our own hands, and give to our local architects the alterations and similar jobs. I am sure you will understand what I mean by that. If the R.I.B.A. could help us in that way it would be better, probably, for everyone.

I think we ought to get a more realistic programme as architects. We are all advertising for staff: we cannot get them. They are just not in the country, but I am sure if one is quite truthful about the building labour and the materials in the country there is adequate staff to be able to spend plenty of time to design buildings, only I would rather see half the jobs which are started going on twice as quickly with a little more material on them than what is being done now.

I have just come back from a short tour in Normandy. The architects are running everything there. They have cancelled all their commissions, and have started afresh with the architects administering themselves, seeing that each architect has work, but none of them too much, and I think we might try and do something of that sort here.

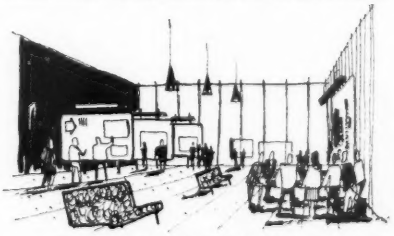
The recruitment of staff is very important. We do not try to get individuals, because we are, and will be a team in the department; what we look for when we make our appointments is, besides the quality of the work, people who are the right sort of people. We do like people to have other interests. One of our people is a Brooklands racing motorist. One told us at an interview that he specialized in breeding caterpillars; but those people, we find, are usually the sort who get on well with everyone else in the department, and they can make a contribution towards the work generally.

Fortunately, our Council is very enlightened also towards its staff. We have good examination grants when our junior people get their examinations. At the moment we have two of our senior people on the Army Release Planning Course in town here, and in that sort of way I think we can get a much better spirit in an office. We also have been lucky in getting people from other places—a student from Montevideo sent by the British Council: we have



'. . . our architects go and give lectures to the schools . . .'

one arriving from Switzerland in September, who looked after the exhibition here. I have tried to fix up something recently in Paris with the French architects to do some exchanging with them, and in that way we can maintain a rather lighter atmosphere in the office than sometimes happens. I think we are handicapped because we are in an old building at present. We have not been able to build our new one. Our present office is on two floors, whereas we think the ideal architects' office should be a large one on one floor, so that people can see what other people are doing. We do not want them to feel they are 'housing men,' or 'schools men' only. When we have an important scheme we put it up in the hall for about a week, with a programme, so that anybody in the department can have a look at it. Then we have a meeting together, when they all say whether they think it is good or bad or how it could be improved, and in that way, whether working on schools or houses, they are in touch with other work in the whole department. It would not be quite so necessary if it were all on one big floor. Having people in separate small rooms is probably a bad thing for the same reason.



'. . . we have had public exhibitions . . .'

Like most people nowadays, I hope, we have group meetings, but we deal through our chief assistants. The leaders of each of the main sections meet, and it is up to them to have their own group meetings with the people in the office. We iron out any difficulties we have in that way, and it seems to work very satisfactorily.

On the public relations side, it is very important in an office like ours to keep the Council and citizens informed and interested in what is going on, and I think one has got to maintain propaganda. You cannot just leave it: you have to keep on all the time. For instance we give a lot of lectures: we always try to get a member of the Council to take the chair at these lectures, so that they will understand what is being said. Our architects go and give lectures to the schools so that we shall be building up in the future a useful population who understand these things. I think you can go about it in an interesting way. For instance, we were having opposition from the Chamber of Commerce to the idea of a pedestrian shopping centre. We gave a lecture to the women 'Soroptimists,' who were very interested and concerned with shopping themselves. They saw the point, and did a lot of propaganda on our behalf, writing to the Press saying what a good idea it was. You can help yourself and your ideas along in that way. We have had public exhibitions, with the help of N.A.L.G.O., A.B.T., the R.I.B.A. and various Ministries.

Another important thing is that you should know the Press in your city. We had recently a gift of £1,000 to make a very nice model of the new central area, from Lord Iliffe, one of our Coventry Press people; and so the story can go on.

Another thing, and I am speaking, I hope, to architects, it is better, in going to committees, not to take perspectives, but simple working drawings. If you take perspectives you get a lot of discussion and sometimes criticism, though we find when the buildings are done, they like them. One example: being short of timber we tried to do some houses rather like F. R. S. Yorke did. I took the committee to see them; they said they were horrible, and they would not have anything to do with them. However, we still built the houses, because the Ministry of Health could not find enough timber for pitched roofs, and they then thought they were very nice indeed. I find one ought to assume full responsibility for one's ideas, and one constantly gets this sort of thing, but you have to carry on and do the job and take what comes.

We had a temporary magistrates' court with a hessian ceiling rather like a marquee, instead of timber, with red on the walls, and when it was finished the magis-

trates walked out and said it was like a circus and they would not sit under it! A great deal of controversy arose: some people said it was high time our courts ceased to look like courts, and began to look like pleasant places, and now they are sitting in the building and enjoying it.

To sum up, I feel the ideal organization, if you can call it such, in an office, is to have a pleasant life for oneself and one's staff, and I think the freer it can be, the better.

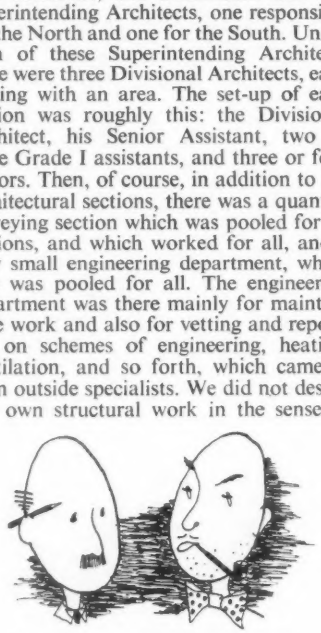
Mr. Campbell: I feel rather diffident at coming last in this evening and last in the whole series, and for one or two other reasons: I think certainly tonight I am the only one who is not a chief of a department. I am just one of the mass, one of the organized, shall we say, and not one of the organizers.

Now I want to make it clear that this is the point of view of an Assistant Architect, Grade I, Southern Division! Also I have to steer a rather careful course, because I know that this is being reported, and I have to watch the reactions, on the one hand of my seniors, and on the other hand of my colleagues and juniors. However, the actual character of my department and the life in it in the past and in the present makes my task tonight easier.

Going back in history, when we started in 1926–7, our people at that time had not the slightest idea what the size of the job was going to be, what it would involve, and what the result was going to be. The first job was to build four experimental pithead baths. All there was to go on was experience on the Continent, in Germany and in Holland, which in the opinion both of the Miners' Welfare Committee and the architects at that time, did not amount to much. These four experimental baths were carried out by a very small group of architects under Mr. Forshaw, and on the result of those four baths—which, I may say, as far as functioning at any rate was concerned, were considered to be entirely satisfactory and a big advance on anything that had been done elsewhere in the world—on their success, the department gathered way, was developed, and formed the basis of the department which we have at the present time.

Between 1928 and 1936 the scope of the work grew enormously: the programme grew and became more complex, and as it did so, naturally the organization developed. An organization grew up on the lines which I think are fairly familiar to most people, of sectional departments. Those sections differed both from the type which we have heard about from Mr. Bennett, and from the type used in Coventry. They were not based on function: in other words, they were not sectionalized to deal with different types of buildings, nor were they, perhaps luckily, sectionalized on ability. There was not a central designing staff or section, with working sections all round it, but the division was an area division. The whole of the coalfields of the country were divided into North and South, then again into three sections, corresponding with the main coalfields. The structure of each of these departments, or rather the whole department to begin with, was roughly this; I am speaking of pre-war practice.

There was the Chief Architect, the Deputy Architect, and underneath him two Superintending Architects, one responsible for the North and one for the South. Under each of these Superintending Architects there were three Divisional Architects, each dealing with an area. The set-up of each section was roughly this: the Divisional Architect, his Senior Assistant, two or three Grade I assistants, and three or four juniors. Then, of course, in addition to the architectural sections, there was a quantity surveying section which was pooled for all sections, and which worked for all, and a very small engineering department, which also was pooled for all. The engineering department was there mainly for maintenance work and also for vetting and reporting on schemes of engineering, heating, ventilation, and so forth, which came in from outside specialists. We did not design our own structural work in the sense of



'. . . the appearance of being somewhat hard-boiled . . .'

designing reinforcement, nor did we do the designing in heating and ventilation plants. They were carried out to our specifications, but the actual designing was carried on outside.

The important thing about this sectional development is the kind of work and the kind of spirit in which it resulted. I think there are advantages, and there are potential disadvantages. The advantages of it are several: I have about six. I believe as a matter of fact that the Miners' Welfare Commission was the first of the larger offices to experiment with this sectional type, and I do not think there are many, even now, which divide the sections up on an area and not on a functional basis.

Our section of seven or eight men has complete responsibility within the general overall policy, for its own work. The Divisional Architect acts almost as a private architect in taking instructions, in contact with the men on the spot, the local committees, and in running his own work. There is, of course, a central filing system.

Under the architect who works in this way is the Senior Assistant. I was a Senior Assistant for some time and I have a very high opinion of Senior Assistants! He acted, in fact, as deputy to the Divisional Architect, and in view of the fact that he spent at least half of his time, at any rate pre-war, in his area the Senior Assistant had on his shoulders a fair amount of day to day responsibility. He acted as deputy and chief of the drawing office staff in each section. Below that were the Grade I Assistants, each with one or two jobs for which he was responsible.

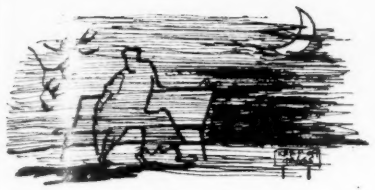
First of all, there was and is this feeling of general responsibility, a feeling of freedom to exercise to a very large extent one's own initiative. Secondly, there is the fact that the small section covers almost every type of work which the whole department covers. There is not one section on pithead baths, another on rehabilitation, and another on district work. District work, I may say, is the term covering institutes, clubs, recreation grounds, pavilions, and so forth. Each man in each section from one time to another tackles and has to tackle each one of these different types of work, thereby, I think, gaining one of the advantages which is gained from a private office.

Secondly, having six sections working in this way in one large office, there did grow up and there does exist a very healthy feeling of competition and rivalry between each section. The rivalry is on two bases: rivalry in production, and rivalry in standard of work. I personally think that is a very important thing, because although most architectural assistants are to some extent, or have the appearance of being, somewhat hard-boiled, it is very easy, if you like to go the right way about it, to build up this spirit of loyalty and confidence in their own particular department if you wish to do it, and this is one of the ways in which it can be done. That general rivalry did give a feeling of life and even extreme liveliness to the office, which was extremely valuable.

It means that each section has close contact with the actual people for whom they are working, i.e., the miners. The Divisional Architect was continually in touch with them, and the immediate reaction of the people for whom we are working was brought into the office, and with quite a degree of briskness.

The next point is the freedom which exists to experiment. Whenever I talk like this about sectional work I want you to realize that I talk about the best side of it, and when I say there is and was from time to time freedom to experiment, it must be understood as functioning within the limits of the personalities of the people concerned, because obviously that has to be taken into consideration. But certainly there is and was that freedom for the most junior man to experiment in design and in construction. If he could persuade the senior assistant then usually he could get away with it. It does mean in this sectional type of work that on occasion the most junior man gets the opportunity to try his hand at the design of a job, and on occasion also, even the most junior man has had the chance of carrying through a job. With this small section also it means that each man sees his job go through completely from sketch plan to final drawing, which again is an advantage, obviously a big advantage over the type of office where one man does only one type of drawing.

Lastly, the advantage was and is the close contact with the senior man, with the



'. . . an asymmetrical romantic massing . . .'

architect. Instead of having large numbers of people in each rank above you, until you reach the top executives, the Divisional Architect was very close in every way to every man in his section, and that again, had valuable results in the feeling of responsibility and being in touch with things, for everybody in the section.

As far as the co-ordination between sections is concerned, briefly, it rests on one main thing, which is the weekly architects' meeting. The Divisional Architects under the chairmanship of the Chief Architect meet once a week to discuss matters arising out of the work, to discuss technical matters and matters of procedure. Their general policy is agreed at the architects' meeting and that forms the co-ordinating basis between design and execution of the various sections.

In addition to that, we now have an informal staff meeting not of the heads of the staff but of representatives of each grade, with the senior architects. The Chief Architect, the Deputy and the Superintending Architects, attend a monthly meeting between representatives of each grade, from juniors upwards, which again gives an opportunity for ventilating feelings in the drawing office, which must, in the best drawing offices, arise from time to time, and also for bringing forward suggestions from the lowest level to the highest level, which might otherwise have got lost in the intermediate grades.

There are potentialities of disadvantages in the section system, but they can be stopped. First of all, it is possible for one section to make, shall we say, slight mistakes, while another section is making the same ones, and for there not to be a close co-ordination that would enable the experience of one section to be immediately of value to another. Secondly, there could be, and I think may be from time to time, overlapping; in other words, you may have two sections both tackling the same problem, both spending time on it, where perhaps one section tackling the job for all the others would have been a more efficient method. We are now taking steps to get over that point. The third one is a purely organizational point, the possibility of a slight inelasticity owing to the different incidence of work in the various sections. Once the section has developed as a unit it is not easy to prise a man loose and add him to another section where work may temporarily be much heavier. That, I believe, has given a certain amount of trouble at higher levels within the department, but I think it can be got over.

It is not right or proper to have a discussion on organization without touching on the design that arises from it. The solution of the problem resulted in a certain character of architecture which I believe is fairly well known. The character of this design is roughly an asymmetrical romantic massing. I use the word romantic in a technical sense, not roses round the door, but a romantic massing as opposed to a classical massing. I do not think we need dodge the fact that it owes a certain debt to a certain Dutch architect, M. Dudok, but I think that arises naturally from the type of material construction which is used, viz., mass brick work with reinforced concrete, and in each job a large tower with the plenum machinery and the cold water storage, forming a focal point: it is difficult to avoid a certain type of what is called 'steamboat' massing. I think you know that particular type; it is not confined to the Miners' Welfare Commission.

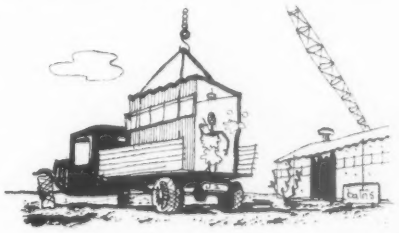
As far as the feeling of the staff in its sectional organization is concerned for its design, I may say there is a certain amount of humility. I think the staff generally is not, shall we say, carried away in any way by the amount of praise and high standing which have been given to our work in the past. We realize perhaps that the photographs upon which that praise has been given are selected: but on the other hand, we must remember that applies to anybody's work. What I can say, I think, is this, that without having any of the great names in architecture on our staff list, we have managed to produce, on the basis of this sectional organization, a general standard of design of which we need not be ashamed. We have done that on the basis of sectional organization, without concentrating the design in the hands of a few outstanding persons. The design has been spread throughout the whole staff, and, I think, rather in contradistinction to Mr. Bennett, that that is better. Giving everybody the chance of designing, and in that way to develop the design capabilities of the staff as a whole, rather than to concentrate the work in the hands of a few perhaps brilliant individuals, is in the long run going to do a better service to architecture.

As to present development, the war obviously has had a big effect on us as on everybody else. The first effect was to disperse the organization, and divisional offices were set up. Those have probably come to stay, but they will have mainly the supervision of work in operation, and maintenance. They will also probably undertake the design and working drawings for smaller jobs. Secondly, there has been an enormous speed up in our programme. That, I suppose, is inevitable with the new development in the industry, but the demand for pithead baths has now become overwhelming, and we have a programme before us, in time and amount, which is rather staggering. Therefore we have been obliged to do something which before the war we should never have considered—to standardize the actual construction of the buildings. We have always standardized on equipment, and so forth, but not on the buildings themselves. That has been extremely difficult, because while you may think one pithead bath very like another, the extreme variation in size and of the speed at which the men come up from the pit and through the building, upon which the bulk of our building is designed, has in the past made each pit bath an individual problem. However, some months ago we re-shuffled the sections into new divisions, and put them on to standardization, and that work is nearly completed, and I think the new types of baths will begin to show themselves in the course of a few months.

Another development is taking place very slowly and very quietly inside the office in design in this way. There are slowly developing the seeds of a more classic and better type of design—a design tending more to what we associate with the word Gropius than with the word Dudok—something tauter and tighter.

I cannot leave what I have to say without one reference to one other side of staff organization, and that is the connection with trade union matters. In 1938–39 after some discussion a Staff Committee was set up in the office. After some years when it was not altogether popular, not only with some of the senior staff but with a certain number of the general staff, that Staff Committee has begun to come into its own. It has been extremely valuable in the rather lengthy and drawn out negotiations on salary scales going on during the last year.

Finally, we have a Joint Staff Consultative Committee, a formal body with proper machinery for negotiations between all levels. In addition, there is the office group of the A.B.T.



'. . . standardization—the new types of baths will begin to show themselves . . .'

The Staff Committee has been of extreme value in acting as a transmission line, and as a discussion forum, for the senior members of the staff to try out new policies on the dog. You try it out on the Staff Committee and see their reaction and that gives you some idea of what the general feeling of the staff will be. That has been a very useful instrument in promoting the smooth running of the department.

I think that is really all I have to say on organization, but I cannot leave it without saying how strongly I feel this form of organization has built up an *esprit de corps* in the department. There is a liveliness and loyalty, which, I am sure, has developed from the feeling of responsibility which this type of organization gives. There is a feeling of pride in the work, without any exaggerated feelings about it, and there is a regard for standards of work, which has an

almost immediate effect on newcomers into the department. However we develop in the future with this greater and faster programme of standardization, I am quite certain this organization will maintain that feeling.

DISCUSSION

A Speaker: It is extremely encouraging to hear people talking in a contemporary way about the work they are doing, and to hear people referring to the æsthetics of architecture. Those who read THE ARCHITECTURAL REVIEW may have noticed an article by Henry Russell Hitchcock in last month's issue on *The Architect of Bureaucracy and the Architect of Genius*, in which he said the bureaucrats were not too bad for second rate work, but we would have to employ geniuses if we wanted to see anything worthy of going down to history. All these geniuses eventually get medals, and this brings me to a question I want to ask Mr. Gibson. What does he think of this astounding, breath-taking suggestion of the Minister's (of Health) of giving medals to the best boys in the housing world? Can we look forward to Coventry endeavouring to present itself in future as Order of Bevan with Clasp?

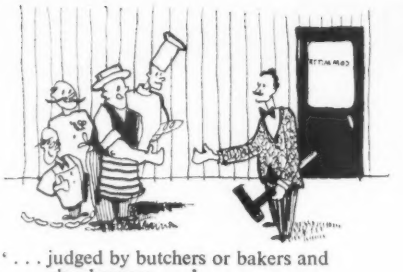
Mr. Gibson: I think this new idea a very good one if the right sorts of buildings get the medals.

A Speaker: Mr. Bennett said that in his office design was executed in a special group. Mr. Gibson said that in his office small units work on actual jobs, each having its own clerk of works. Mr. Campbell said in his office there were area sections. Although Mr. Campbell said that co-ordination of design was a potential problem, I think it is a real one, especially in a very big office which has a tremendous amount of work to tackle.

May I put forward an alternative possible solution which has been tried at L.M.S. or is being tried, namely, a research and development section. Such a research and development section would be interested purely in the design of standards, in the problem of materials, in the problem of design and prototypes of buildings. How far to go with these standards would be the business of the rest of the office.

I think a clerk of works to each unit rather unsuitable. The clerks of works could be joined together into a production office with one clerk of works in charge; as a big problem is being tackled, deficiencies in certain areas could be collated and mistakes in design co-ordinated, which would be more difficult if each section had its own clerk of works.

Mr. Campbell: I would not mind if there were not a similar standard of design throughout a large organization. Secondly, the point about the research section is a valuable one that I omitted; the Miners' Welfare Commission is contemplating setting up a research section; this would not lay down standards, but investigate the functional problems which come up with any new work. They would be an investigatory section to produce the information and hand it on.



'. . . judged by butchers or bakers and shopkeepers . . .'

Mr. Gibson: In a case like the L.M.S. or the Miners' Welfare Commission, you might need that sort of thing. A smaller department can rely on the Building Research Station, who are doing these things for all of us. If we have the intelligence to make use of it we can send our problems to the specialists there.

On the question of clerks of works, I did not make myself clear. Each of our small groups has a clerk of works, and if necessary they share one with someone else.

There was a point which is quite important. We do encourage our clerks of works to come in and see a great deal of the architectural groups and discuss things with them. We find, especially with young people, that the knowledge of a clerk of works is often very valuable, both one to the other, and if they look at one another's drawings in the early stages, they can help a great deal.

Mr. Bennett: Independent pockets of design have been one of the worst features of official architecture during the last twenty-five years. There were sometimes so many jobs in an office that even the office boy got a job—and he was engaged in designing it. With a large office you could have a pair of police houses with sand-faced brick and hand-made tiles, a school with a pantile roof, a clinic in terra cotta, and all that sort of thing.

If the better people in any large establishment can help and teach all the rest, as you get in a school of architecture, enthusiasm is created, because the juniors are working with the best designers. In my own office I have a designing engineer who is a first-class designer, working with the best architectural designer in the office. They work together on adjoining boards, and go right through the whole job together.

Many a time I have seen a problem badly solved in a large organization when someone else in another part of the office had solved it efficiently six months before. When people get into separate rooms and buildings it is difficult for them to mix. So we are attempting to get one complete family of technical and professional staff in order that the whole information is available to everyone in the office.

A Speaker: I have two questions to ask the speakers: what type of training do they find most suitable for the architects they employ? Do they feel that the R.I.B.A. is giving sufficient backing in this pioneering work?

Also as an Associate Member I would like to congratulate the Institute on having had this series. It is extraordinarily valuable to have had three such first-rate representatives here tonight, and we are lucky to have heard them.

I think we have to recognize as architects that there are basic and revolutionary changes going on in the country, and we have got to be prepared to deal with them. For instance, we are at present divided; we are lacking very greatly in real unity in the profession, and one might say our main divisions are partly religious—in that they are divided into ancient and modern, and partly economic, in the sense that we have private and public offices. I think we have got to resolve these facts.

I specifically ask of the speakers this question with regard to the backing they are getting from the R.I.B.A. because we have a big problem in these new emergent types of team offices where groups of technicians work together. There are grave dangers, which were showing themselves before the war in such offices as the L.C.C. and Office of Works. I think the dangers of elephantism and clerical domination are two of the problems.

Mr. Gibson: First, as to the type of person we like: I have come to the conclusion that one needs a good mixture of several types of people. Being what one might call a school-trained fellow myself I thought they were pretty good, and I tried to get a lot of them; but my experience has been that the other chaps are just as likely to be as good, or almost, on some things, and better on others. Similarly, I think school-trained fellows are just as likely to be bad as the others are good. It depends on the man. If possible it is better in your office groups to see that you have at least one fellow who has some feeling for design, and some fellow who is really pretty sound and keen on construction.

The R.I.B.A. question is a little more difficult to answer. I think the R.I.B.A. was split a few years ago in itself, on this question of official architects and private architects, and I think it led to a lot of no good. My own feeling is that now the thing is balancing itself up. The Institute appreciates that they stand for everybody and the profession as a whole. I feel that. I have seen it here in committees, and I think this meeting here tonight in a way shows what is being done in one way for us.

I would like to feel that the Institute had more money to be able to do more propaganda in the way of exhibitions, because I feel that our job as official architects is sometimes difficult. One has to deal with lay councillors who do not pretend to know very much about our profession. They are not judges of whether work is good or bad. Educational work in the cities must be done. One thing that worries me is who the

officials are going to be. One is selected, after all, from a short list. One is judged by butchers or bakers and shopkeepers. I suppose they choose you because they like the look of you. In some places one might get very good people, but equally one might get the reverse. There is one sphere where the Institute might give some help. I think it would be a good idea first of all, when any local authority wants a new Chief Officer, for them to obtain the views of the Institute on cutting the list down to 20 people who are reasonably competent technically; and then let the lads loose to choose their own. In that way the Institute might do more than it is doing.

A Speaker: May I, as a member of the Public Relations Committee, add a word as to what the Institute is doing. The Public Relations Committee organized this series of lectures partly because they thought they would be a good series and partly to see the kind of support which a series of lectures of this sort would get.

I should only like to add that the support, which has been good, has made the Public Relations Committee think in two ways. First, that they tried to cram into individual lectures far too much, and they ought to have made the series one of six lectures; secondly, it is obvious that they must seriously consider running more lectures of a similar type.

A Speaker: I would like to say first how much I have enjoyed these lectures. A most healthy sign was the fact that the speakers disagreed on some very fundamental points. What struck me most was the lack of architecture that they proposed to show; it was mostly on paper, mostly models, and one would gather from Mr. Bennett that never before the war had there been a Department of Architecture at Wakefield.

There is within the profession a very fundamental psychological problem. I have passed through some departments, the Ministry of Works and the Air Ministry—I say passed through because I was very soon asked to go: they have an irreconcilable problem of the individualist who is trying to fit into an organization of that kind.

I lecture in Architecture, and I say to my students, 'This is a way of life and thinking: it is your life'. Yet I know when they leave the school where I happen to teach they may go into such an office as I did, and be put on to hutting. The work I did could be done by a lot of girl guides; it is not the job of a skilled designer. I am perpetually faced with this problem. Do I tell my students that the profession is not rosy, but in a sorry state, that the country is virtually bankrupt, and the best they can hope for is to do type drawings for a local authority, or, if the worst comes to the worst, in the Ministry of Works? Am I to say to them: I will equip you in a year or in two years so that you can become a very efficient member of that community: or must I say that architecture is a way of life, bigger than the buildings themselves, and try to show them that way? I have chosen the latter way; I will not stoop to the other. I feel I want to go to Coventry and say to Gibson, 'I want a job and will work day and night on this idea.' That is the impression one gets from Gibson and Bennett, though I would not fancy going into the building designed by Bennett at 9.30 a.m. and working all day.

Mr. Campbell: I had ten years in a private office as an assistant, not in private practice. I have the greatest gratitude for all I learned in that private office; it was the foundation of all I know now, but I never really knew what freedom was until I went to the present office I am in. That was not because of defects in personnel, but because I was in a larger sphere with perhaps larger social ideas.

We have no responsibility for the coal shortage, I am glad to say. What we have got is a very deep feeling of gratitude and of gladness that we are able to build something which will do something towards lightening the loads of the men who get the coal. That is not talk. We know these miners, and know their conditions, and I mean it really exists in an actual architectural office. You would not get the blokes to talk about it, and that is why we are content to go to a building at 9 a.m. (not 9.30 a.m.) every day and work eight hours a day on that work, and very glad to do it.

Mr. Bennett: I think I must explain why I did not show any work of the previous County Architect. He died at an early age through overwork six or seven years ago, and I can say from all I know he worked terrifically hard, and so did his staff.

I also know this, that in our area, the Education Architects' Section—which probably carried out half a million pounds' worth of work a year—performed their services in the past at a cost to the ratepayers of less than 3 per cent, which also included the quantities. Those people today are feeling thankful that they are being taken out of a deplorable hut building that houses 70 people, and that they are going this year, thanks to the Ministry of Health, into a building which is going to cost about £70,000. If those conditions are not good as an architects' office, I do not know what are. There will be a first-class library in the centre of the building, and every other amenity. I think they know where they stand, for quite good terms and holidays, and from my experience I have never noticed anything that is not enthusiasm amongst the staff.

When it comes to freedom in doing work, there is more freedom among the people than I expected, because previously, as well as teaching, I was a private architect. It is possible to work day and night, and quite a lot of the staff gladly do it, although they do not receive overtime for it. A member of the staff did a drawing for the Academy on Sundays: it doesn't matter whether it gets in; it is a good drawing. Another man in his evenings managed to win the Victory Scholarship this year. So the standard of enthusiasm and quality of work is there.

A Speaker: Regarding the R.I.B.A's. policy on exhibitions, I would like to tell you as Chairman of the Exhibitions Committee that we are hoping towards the end of this year to run another major exhibition, similar to 'Building Now', and I would like to take this opportunity to welcome from the various members here this evening work they consider should be included in that exhibition; and to tell them of the very great difficulty the Exhibitions Committee have had in the past in getting representative work from architects to include in these exhibitions.

The Chairman: We are now considerably overdue, which I think is a compliment to our speakers. I am sure you would wish that I should, on your behalf, thank all three of them. It certainly has been a magnificent finish to this series.

This gathering indicates the change that has taken place in the profession in the last ten, fifteen or twenty years. A question was asked as to whether the R.I.B.A. gave sufficient backing to architects in public service. I think the fact that this meeting has been arranged is an indication that they do. It is equally a fact that this meeting certainly could not have taken place fifteen years ago, because at that time architects to public authorities were looked upon as being some peculiar lesser breed than architects who earned their living in a different way. This meeting indicates that the architect in public service is recognized as being fellow to the other architects who get their work in a different manner.

You have heard three architects from different kinds of offices referring to staff, and I am quite sure if you had heard a lecture in this building or in the old R.I.B.A. Headquarters some years ago by any prominent architect, no mention would have been made of anybody who had helped him to do anything. I do not wish to be unkind to the great men of the past, but if you read a list of the works done by the great Gilbert Scott, the grandfather of our present great architect, you would see that he turned out a cathedral every month over a period of three years; nobody recognizes or knows about the fellows who did the work. But here we have an open admission—when Mr. Gibson, for example, publishes drawings, they bear the name of the architects who in fact did them—that we have at last recognized that architects' offices are peopled by real architects, who as a team produce work.

'. . . and very glad to do it . . .'

Swedish Architecture in 1946. Part III

Stockholm's Parks and Gardens

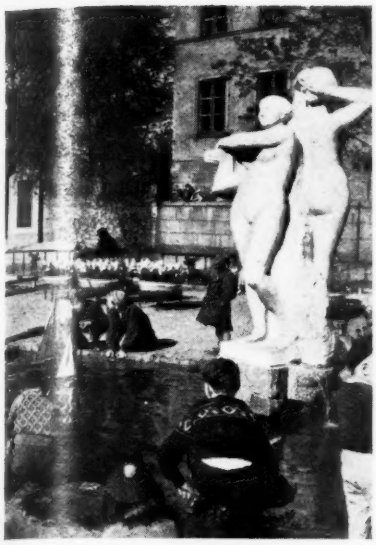
Architect S. A. R. Holger Blom
Chief Architect of the
Parks Department

Above: a bird table. Right: open-air seats amid flowers at a lakeside café on Norr Malärstrand. Note the lamps which throw pools of light on the tables, flowers and water's edge. Photo by F. E. B. MacManus [*F*]

IT IS perhaps typical of Swedish mentality that the man in charge of Stockholm's public parks is an architect. Could such an appointment be made in this country? What British local authority is there who would not demand gardening experience as the first qualification for such a post even if the man's ideas went no further than geraniums in circular beds? The Swedes do not even appoint a 'horticultural expert' or a 'landscape architect' but just a competent well-trained working architect.

Of course, Mr. Holger Blom may have an exceptional and peculiar genius for his job —a kind of 'architectural green fingers'— but the Stockholm Park system shows everywhere a planned use of space, a sense of composition and a purposefulness which are the architect's special contribution to any problem. The Stockholm parks system is probably unique in the world in that all parks and open spaces, however small the latter may be, which are controlled by the municipality, are considered as a single entity as well as individual to the localities they serve.

The foreign visitor is at once struck by the realization that a park is considered to be a functional object. It is not just so much open space through which women push prams or where children are kept off the grass by notices. Nor is the park a horticultural exhibition. It is much more than these things; its job is to serve all sections and ages of the community in giving them relaxation and freedom from the routine and restrictions of office, factory, school or home. It is as much a place of service to the active as to the passively inclined. Fourteen-year-old boys want to rush about and kick footballs; so fenced miniature football grounds are provided. The nine-year-olds want to play with water and dam streams, so pools and dammable streams are provided. The six-year-olds are happy playing at buses, so old buses and lorries are provided, gaily painted and made safe. Some people want music, some refreshment, some solitude and seclusion, others want open space, crowds and noise. The Parks Department tries to provide all these things somewhere, to give all classes and ages what they want, either consciously or subconsciously, and not to *restrict*. Do we not in England look on the public park as something that is essentially ordered, where there is restraint, which is entered past a list of regulations on a notice board and over which is the slightly menacing shadow of the park keeper? Not so in Stockholm where an unfenced patch of trees, grass and flowers at a street intersection is part of the park system; where there are women attendants to look after and help amuse the toddlers and not to police them; where there are no prohibitory notice boards.



Left: a disused market place at Södermalm modernized with sculpture by Nils Sjögren, a pool and flowers. Above: an old lorry gaily painted and set in a play-park so that children can play at buses

That such a policy is possible is to a large extent due to the natural sense of good behaviour of the Swedes; they do not walk across the corners of the grass, pick the flowers nor carve names on the trees; also they do not keep pet dogs in towns. Nevertheless, Mr. Holger Blom says that these national characteristics are not wholly responsible for the success of the system. Propaganda has had and still has a very considerable influence. The Parks Department invented a fictitious character called Peter who was introduced to the schools and cinemas. Peter never threw down paper and he picked up any he saw lying about. Peter sometimes made mistakes and committed anti-social acts but regretted them afterwards. Moreover, the public are encouraged to ask questions about their parks and to make suggestions. Letters to the Department are always answered in a personal way. Children in schools are asked to fill in questionnaires stating what they want to do in parks. The citizen of any age is made to feel that the parks are his personal concern to use and take a pride in.

At present Stockholm has 3,840 acres of park, a remarkable amount when one considers that the city has an abundance of open spaces in lakes and water-ways and is surrounded with much wild land. The acreage has been doubled in the past five years in an attempt to obtain a network of linked green spaces throughout the city. This has been achieved in many ways. Parkland and playing space was reserved in new housing developments; sometimes old houses with gardens have been acquired and the gardens connected by gateways, their intimate nature being carefully preserved. The Parks Department have even persuaded the owners of fine old gardens to leave them to the city by will. No space is too small or unpromising for the Department to consider.

Perhaps their greatest achievement in the way of creating a beautiful park out of the most unlikely material is Norr Malärstrand. Some years ago flats were built along the side of lake Mälären, the rock blasted from foundations being thrown out along the shore. Out of an untidy rock-strewn slope a charming mile-long garden has been created, diverse in character, now open, now intimate, now planned for sand-digging babies and their knitting mothers, now with the ice-cream kiosk or small tea garden for the elders. Where we would have built an esplanade, they have designed the perfect setting for a lakeside stroll of which the character changes from view to view and where one can stop and rest—without being asked to pay for a seat.

On the newer arterial and sub-arterial roads, playing fields and parks have been planned isolating the traffic lanes from the blocks of flats, partly to keep noise away from dwellings and partly to separate pedestrians from vehicles. The overall road widths are 80 to 120 metres, some double tracked, with reservations on each side of a minimum width of 50 metres. Here are located tennis courts and hockey fields and the miniature football pitches which appear to be an invention of the Parks Department. These pitches are surfaced with rolled gravel, have goals at each end and are completely surrounded with high chain link fencing on steel standards.

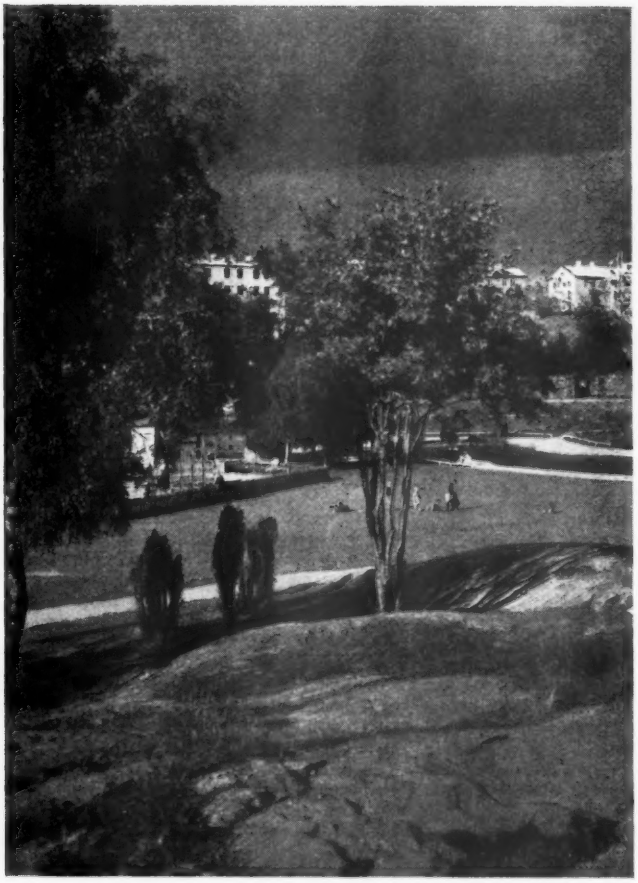
A typical family playground among blocks of flats has some greensward, trees and bushes but is planned primarily for use. In addition to the miniature football pitch, there are groups of swings, roundabouts, slides, climbing frames, and 'jungle trees', the last being a group of safe tree trunks on which children can climb. There is a paddling pool and sometimes an artificial stream running through a rocky outcrop. Sand pits have groups of seats for mothers nearby. There are secluded corners for the aged. At Embachen Park, which is typical of parks attached to housing estates, there are old houses converted as a play centre where children can play, paint or dance, under the care of a nurse-teacher-attendant (we have no exact equivalent of this profession) either inside the house on wet days or out of doors.

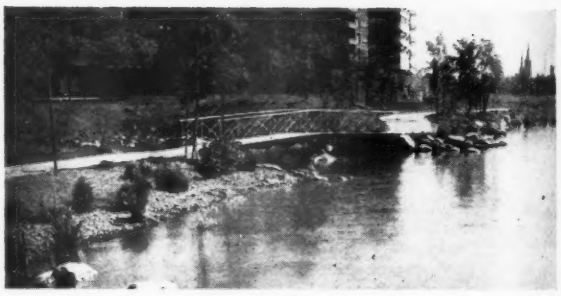
The larger parks are not unlike the semi-wild parks occasionally found in Britain, such as Richmond Park in London. The Judarn Park near the suburb of Bromma has 216 acres of hills, meadows, forests and a lake. In the more urban Vasaparken is a bandstand where symphony concerts are given to audiences of 1,500. In 1946 180 concerts were given at 20 places in the parks.

At a time when Swedish architecture in general seems to have abandoned its former variegated gaiety and to be turning towards a more sober preoccupation with standards and functions expressed in a studied informality and reticence, it is pleasant to see that the Parks Department has no such ideas. There is no standardization observable unless it be in the infrequent notices and signs, in some of the children's equipment and in the occasional use of four or five copies of the same statue in widely-separated parts of the city. Each piece of land seems to be planned entirely on its own merits, as an individual problem and to be equipped with small structures and impedimenta created specially for the site. In design there are touches of frivolous gaiety, as in the kiosk on page 414; there is even a little sentimentality, as in the bird table on page 410. Nobody seems to be preaching any architectural creed; there is no 'be-modern-and-like-it' attitude, nor any outworn classic conceptions firmly digging their toes into park soil.

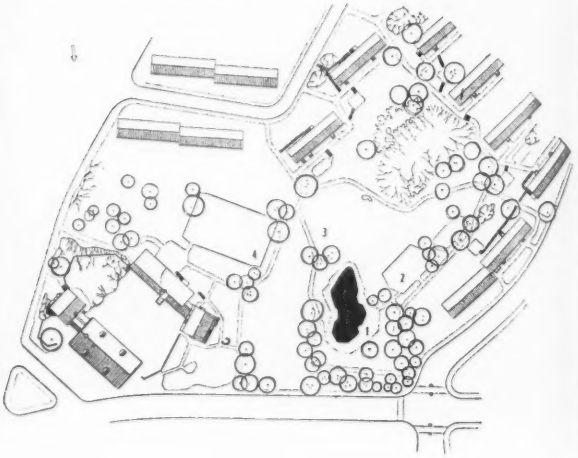
A study of the Stockholm parks system —which can be made with full benefit only on the spot—has a special interest today when urban planning is becoming open; when it is an aim of all good planners to extend wedges of green from the countryside into the hearts of towns; when play-parks are provided in close association with groups of dwellings. It should be noted that the system has three dominant and interdependent features: comprehensive planning of the whole together with individual planning of units for special purposes; anxiety to serve the community and therefore an abandonment of the dictatorial in both administration and architecture; a thorough and skilful scheme of public relations.

ERIC L. BIRD [4]

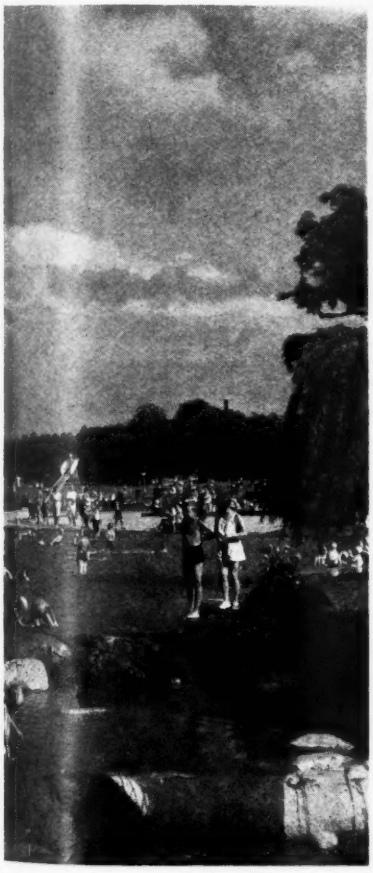


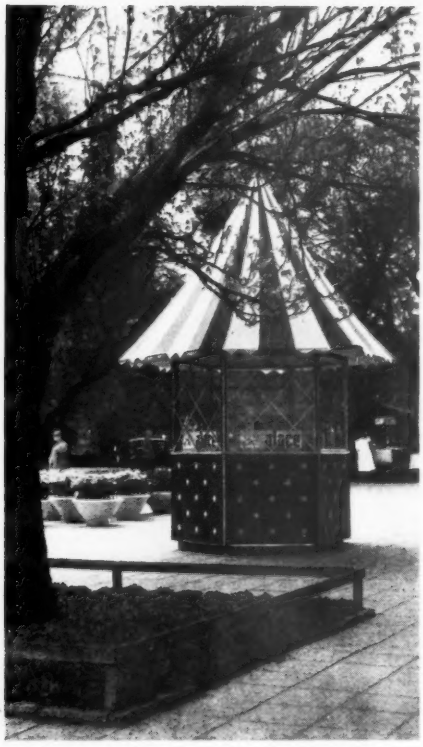


Top: the administrative building and rock garden at the plant nursery. Above: footbridge at Norr Malärstrand. Left: a typical park in a housing estate with paddling pond, games areas and miniature football pitch. Below: plan of another housing estate park showing the typical informal grouping

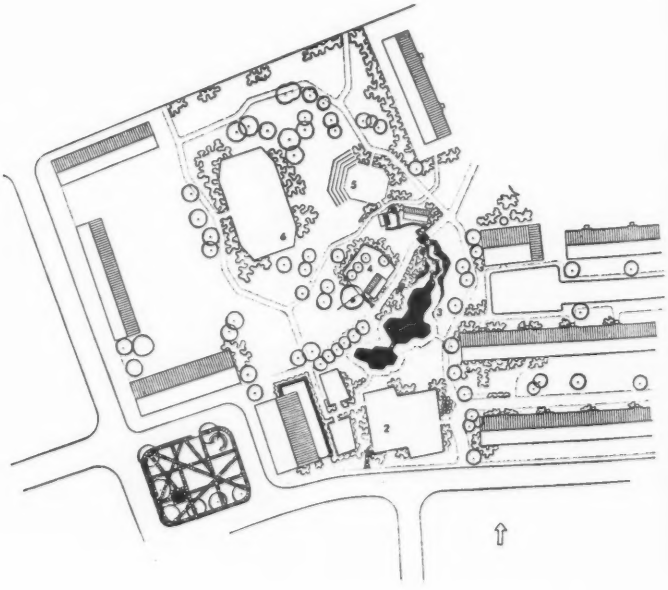


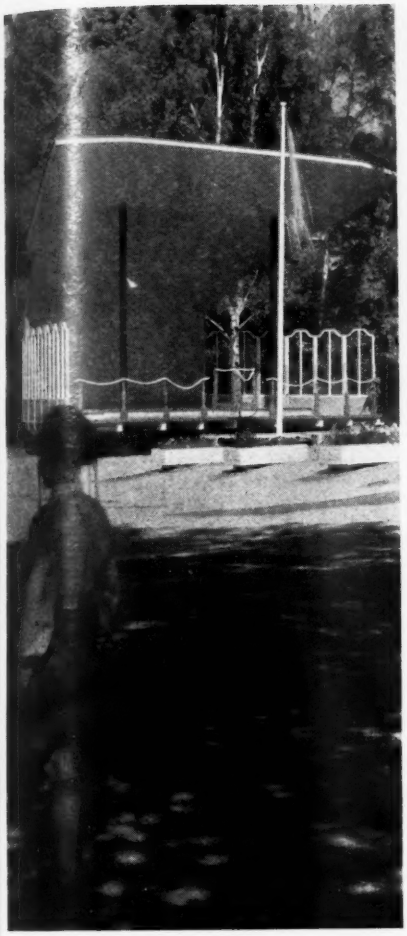
Above: old houses and gardens converted as an intimate park by connecting gateways in fences. Below: old houses are preserved as games halls for the children and a nurse-attendant provided. Left: at Fredhällsparken is a paddling pool for 200 children. Note the outflow into lesser pools



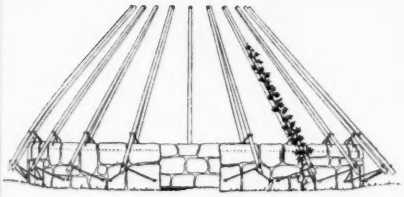


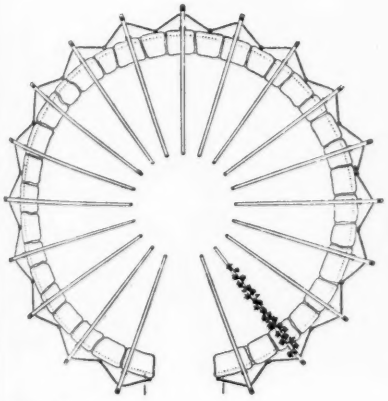
Above: part of Norr Malärstrand, created out of a debris-strewn foreshore. The enclosed sandpit for toddlers has seats for mothers and nurses. Beyond is a creeper-clad arbour for older folk. Left: the traffic centre at Nybroplan 'furnished' with gaily-painted movable kiosks and flowers in large concrete pots. Below: plan of another play-park in a housing scheme

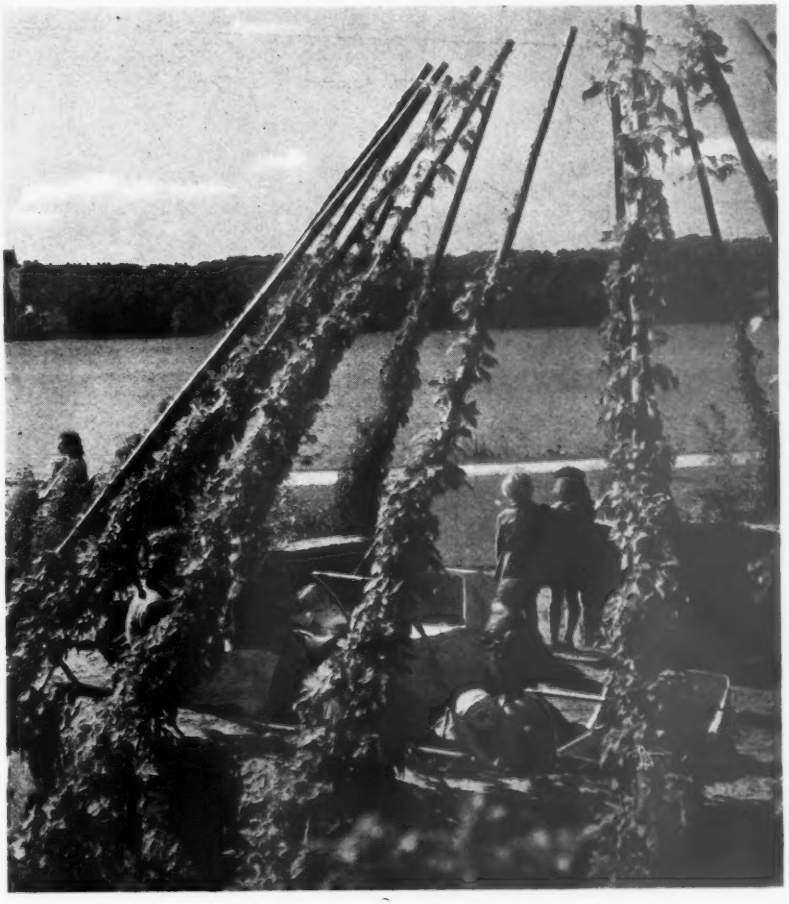


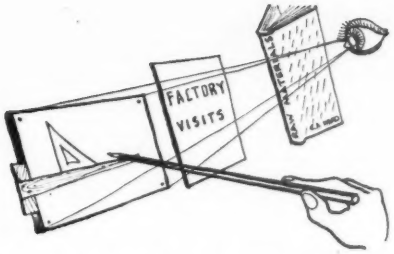


Above: lawn with playground for small children at Humlegården. Left: the bandstand in Vasaparken is used for symphony concerts two or three times a week and audiences of 1,500 are usual. Below: drawings and photograph of a creeper-clad arbour on Norr Malärstrand









Preliminary Studies for Industrial Designers

By John Gloag [*Hon. A*]

Read before The Architectural Society at Liverpool University on 8 May 1947 and before the Architectural Society of Sheffield University on 13 May 1947

IN ADDRESSING an audience of potential architects, people who are studying architecture, I have the advantage of speaking to an alert and clear-minded audience. I know that this opening gambit is favoured by Counsel for the Prosecution or the Defence, when they are addressing a jury: they always say that seldom have they had the opportunity of putting their case before a more intelligent body of men and women. But I am not indulging in any spurious flattery on this occasion: I am being strictly factual. If people who are studying architecture are not alert and intelligent, then they soon cease to continue those very exacting studies. Another difference between my address to you and that of a prosecuting or defending counsel to a jury, is that I am neither prosecuting nor defending anything. I want to draw your attention to some new conditions that may affect your professional lives and activities during the next 20 or 30 years.

Let us go back to the golden age of design for a moment. Let us assume that I am talking to a few people who were studying architecture not in the year 1947, but in the year 1747. Had I been addressing you then, I should probably have discoursed about the accommodation, within the existing framework of design, of the latest modes, French or Oriental; and I might indeed have said something about the amusing eccentricities which were being practised by Mr. Horace Walpole at Strawberry Hill, unconscious of the strain of romantic taste which was being nourished in that 'little plaything house', as Strawberry Hill was described, perhaps a thought preciously, by its owner. I should have had no message to deliver, no prophecy to make, no doubts to resolve, for there existed no conflict which provided an opportunity for provoking discussion. You and I were then living in a world of æsthetic and technical certitudes, and were urbanely aware of what could and could not be done. You, as students of architecture, would then have realized that your responsibility for design was universal. Your studies would have prepared you for tackling any job, whether it was the design of a coach, or a mansion for the nobility or gentry completely equipped from attic to cellar with all the elegant appurtenances necessary for the correct conduct of people who lived a modish life. The architect was a master designer, and was acknowledged as such, and, moreover, he had the supreme advantage of working for an educated minority of people who ran the country; and the taste of that educated minority of people was supported and backed by a vast and universal body of common sense, which was expressed in practical terms all over the country, whenever anything was made by the hands of men. It was, I repeat, the golden age of design, and the fact that the system of design which was practised everywhere was a national interpretation of the Classical Orders of Greek and Roman architecture and all that they implied in guidance for proportions and conventions for ornament, was no check to invention, and placed no fetters on the imaginative ingenuity of designers. So much for the 18th century.

We know what happened during the 19th century. The architect became a mere dealer in façades. In the United States they have one of those nice slick expressions which they use when they talk about executives whose job is to be in contact with the clients of any business. They say that an executive or contact man is a 'front man'. This apt term really should be used to describe architects in the 19th century.

After the architect became a 'front man', he lost his position of universal responsibility for design. He never took part in the Industrial Revolution, although there were one or two promising partnerships between architects and industrialists in the early stages of that Revolution—but they never led to anything. The architect, like other creative designers, abjured the Industrial Revolution. I suggest that the architect now has a chance of returning to his former position of control if he is prepared to accept universal responsibility for design. The opportunity is here—the opportunity has existed for some years. Every circumstance of the times through which we are now passing supports the suggestion that the architect should accept responsibility for design that goes far beyond architecture, should, in fact, become acquainted with the character of industrial design, and in his own mind be perfectly clear about its divisions and ramifications. Already, one section of building has ceased to be a problem of architectural design, and has become a problem of industrial design. I refer, of course, to the factory-made house. I am not referring to those uneconomic temporary prefabricated houses, but to the permanent prefabricated houses, many of which have been designed by some of our leading architects, men of the calibre of Frederick Gibberd, Richard Sheppard and F. R. S. Yorke. But my subject is not that particular manifestation of industrial design, but all that the term 'industrial design' implies.

Now, before I speak very briefly about preliminary studies, which as students of architecture you might make to introduce yourselves to the subject of industrial design, I want you to be perfectly clear about what I mean by that term. I am proposing to clarify the subject in two main divisions, and I am calling these two main divisions (1) Industrial Design, and (2) Commercial Design.

(1) Industrial Design

(*a*) *Engineering*, where products range from motor cars to railway coaches, telephone kiosks, trans-Atlantic liners and yachts, but are all capable of deriving benefit from trained imagination.

(*b*) *Light Engineering*, which includes products with a static or mobile mechanical or semi-mechanical function. Radio and television sets, lawn-mowers, typewriters, sewing machines, coffee mills, mincing machines, perambulators and cooking and heating appliances would come under this section.

(*c*) *Factory-made Consumer Goods*, using one or two basic materials, produced or assembled to form a finished article for distribution. This section would include such things as metal cooking utensils, combs, toothbrushes, safety razors; also some types of furniture, such as metal office furniture.

(*d*) *Factory-made Goods with a Craft Basis*, which depend upon an association of mechanical and hand operations and the use of one or two basic materials, or a variety of materials. This section covers such ancient craft industries as furniture-making, pottery, domestic glass, leather-work and the making of such things as luggage.

(*e*) *Decorative Materials*, whose use depends upon the nature and quality of their surface, texture, colour and pattern. This section includes all textiles, carpets, rugs, furnishing and clothing fabrics; also wallpaper, linoleum and other flexible materials used for the covering of surfaces, such as sheet rubber and various plastics.

(2) Commercial Design

(a) *Packaging*. This wide term covers packs and containers of all kinds, and includes the handling of a large variety of materials, metals, light alloys, foils, pressed wood, moulded wood and pulp, glass, plastics, and wrapping papers.

(b) *Printed Display Material and Signs*. This includes showcards, window bills, streamers and signs.

(c) *Commercial Literature*. This covers booklets, leaflets, price lists and catalogues and folders.

(d) *Exhibitions*. The design of exhibition stands and displays, both inside shops and stores and in exhibition buildings is a branch of commercial design, and also a branch of architecture.

(e) *Display*. This concerns the presentation of goods for sale, whether in shop windows, on counters, in showrooms, or showcases or on exhibition stands.

(f) *Typography, Lettering and Printing*. This concerns the five sub-sections of Commercial Design listed; printing is a basic industry for all commerce and is one of the most revealing ways of presenting the character of a business.

(g) *Press Advertising*. This covers all kinds of uses of the graphic arts—associations of type and illustration, conveying an advertising idea.

These subjects are all to some extent inter-related, but I do suggest that the divisions I have indicated and the sub-sections of those two divisions help to clarify the whole subject. I want to make it clear that I am not speaking with any high technical authority about this: these divisions and sub-sections I have worked out myself, and I present them perhaps a little arbitrarily; but I have worked them out because I have found that it is easier to explain what is meant by industrial design if people know what it is supposed to cover. And you will have to do a lot of explaining today, not only as architects, but as designers generally, because you are not living in the golden age of design, when there was educated, well-informed patronage, and in the lower strata of society the bright and blessed light of common sense. Today there is very little educated patronage, and throughout the whole of this country and others there is a shortage of common sense. Indeed, it is not too much to say that there is a world shortage of common sense, if two totally unnecessary world wars within a lifetime mean anything.

I repeat, you must be clear yourself about the subject of industrial design, and you must be able to explain clearly. There are perhaps a few elementary things which you will forgive me for referring to. When you are studying and talking about and attempting to explain industrial design, always be clear, and beware of technicalities. You are yourself a professional technician; all the more reason why you should never inflict technicalities upon the layman. Keep this subject simple in your own mind and particularly when you are talking about it.

When you set out to study industrial design and to appraise this or that manifestation of it, everything may seem quite alluringly simple, particularly if you take as a guide to your critical judgement that old slogan 'Fitness for purpose and pleasantness in use'. But—you always have a duty to doubt. No slogan is infallible, no matter how much common sense it apparently embodies. Slogans may be twisted to serve some modish or even some ideological end. So you must, when observing the manifestations of industrial design, and attempting to judge their intrinsic merits, always be alert. Apply hard common sense and your own trained powers of imagination to judging critically any design, whether it originated in 18th century France or England, or was shown on some stand at the Great Exhibition of 1851, or at the 'Britain Can Make It' Exhibition last year, or came off the production line of some American factory yesterday, smooth, sleek and up-to-the-minute in form, colour and finish. There has been such a big reaction against excessive indulgence in ornament, such a protracted period of purification (one might almost say *sanitation*) in design, so much adulation of 'functionalism', that a thing may sometimes be dolled-up to look 'functional' when it is really inefficient or wastefully designed; the *appearance* of fitness being used as a fashion note. But do not be taken in: beware of the manifestations of fashion; they may intrude under all kinds of sober guises, and all human beings are susceptible to the wiles of those accomplished specialists in temptation, the directors of fashion. Not that there is anything intrinsically wrong with fashion as such; it is the vehicle of a gay exuberance, lacking which civilization would be as grim as it was in dark Puritan England under the rule of Cromwell's major-generals. But fashion is a great confuser of issues about industrial design and does not always find expression in frills and furbelows; it can inspire spurious 'streamlining'; it can banish some happily imaginative shape and finish by insisting that the design must be 'a functional statement' or 'a statement of functional needs,' thus allowing respect for jargon to displace inventiveness.

I repeat: beware of *technicalities:* they may sound fine—they often carry such an air of authority particularly when they are drawn from the research laboratory—but analyse them as you analyse slogans. Somebody is bound to ask you what you mean, and then if you have been tempted to repeat something about 'the integration of basic functional requirements with the economic norm of industrial operational needs and materials' you may find it difficult to explain. I should. So did the young designer I once heard using that chunk of pretentious lumber with such blissful confidence. Of course, technical terms do occasionally explain something. You may sometimes (but not frequently) hear a typographer or a designer of press advertisements refer to 'the visible span of apprehension' which means: 'how much you can see at a glance.' But why borrow the terminology of the psychologist, the economist or the physicist, unless they can provide some vivid, memorable and clear words which quickly illustrate a meaning? The man who is an enemy of jargon can be a friend of clarity. It is better to be almost inarticulate than a glib master of jargon.

In forming your own critical standards and explaining them, as you may have to in the future, use simple, current English to your clients.

I have referred to you as a technician, and it is important that an industrial designer—or a potential industrial designer—should always present himself as a technician to his potential clients. After all, he is a technician, and can prove it by the practical nature of his work; also, an industrial designer often has to take his place as one of a team of technicians in tackling the problems of industrial production.

Of all forms of training, that given to the architectural student provides the most practical and effective groundwork for the study of industrial design. The architect is trained to study materials, and to know a great deal about them; to understand their capabilities, and to exercise his imagination in employing to the best advantage those capabilities. At an early period of his technical training a lively interest is aroused in his mind about materials: his approach to the subject becomes adventurous, he can never become hidebound on this subject, unless of course he is one of those people who are born that way and then he would be hidebound about any subject he was studying. This characteristic of an architect's training may account for the fact that many of the leading industrial designers in this country, and a good many in the United States, happen to be qualified architects or have been trained as architects. It is essential for a potential industrial designer to familiarize himself with the character and properties of a great diversity of materials. We are living in the early years of the second industrial revolution—the revolution that is based upon the use of electric power, light alloys, chemically produced substances, and new forms of such traditional materials as iron. But do not imagine because you live and work in the second industrial revolution that all the methods and materials of the first have been outmoded or discarded; for methods of fabricating materials are constantly improved and amended and the materials themselves, as a result of research, are brought up to date, often acquiring new finishes and properties, so that they are scarcely recognizable as they are used today.

It is easy enough to say you must familiarize yourself with materials; but how are you going to set about it? As a first step, I suggest you read C. A. Ward's admirable introduction to the study of the subject, entitled *Those Raw Materials*. Ward's is a basic book on materials. It should give you, at the outset of your studies, a clear and logical approach to the whole subject, and should enable you to co-ordinate your information.

It is divided into two parts, which cover: *I. Raw Materials and their Uses. II. Occurrence of Raw Materials.* This book will save you any amount of time in acquiring preliminary knowledge of materials and their uses.

Regard Ward's book as a guide to your programme of studies, and try to visit some industrial plants, if possible in this order:—

(1) *Plants producing materials, from the raw mineral or chemical substances to the form in which they can be fabricated (such as pig iron).*

(2) *Plants partially fabricating materials (such as aluminium sheets or extruded sections, plywood, or plastic sheets).*

(3) *Factories making finished goods (which may be represented by a pottery producing domestic ware, a battery of looms producing carpets, or an assembly plant for radio sets, typewriters, sewing machines, cars or lorries).*

These three headings may be illustrated by specific examples, again to give you an indication of the sort of study you should pursue.

(1) *Plants producing materials, from the raw mineral or chemical substances to the form in which they can be fabricated:* A simple and straightforward example is provided by iron, the basic material of the first industrial revolution. The ironfounder uses what is known as pig iron, and this is produced by smelting in a blast furnace to separate the metal from the ore. The furnace is filled with iron ore, limestone and coke fuel, and temperatures as high as 1,800 degrees C. may be reached. The iron ore is melted, the molten metal descends to the bottom of the hearth of the furnace, and is then drawn off into the pig beds or moulds, where it cools and solidifies in the form of pig iron. In the manufacture of steel, the molten metal, instead of being halted at the pig iron stage, goes through further refining processes.

(2) *Plants partially fabricating materials:* We will follow iron through under this heading, and supplement it with another example later. The pig iron which was produced through the smelting of iron ore in the blast furnace is sent to an iron foundry where it is remelted and cast in a mould. A pattern of wood or metal is made, which exactly represents the form of the ultimate casting. This pattern is put into an iron box, and surrounded by sand which is the commonest form of moulding material; the sand is rammed tight around the pattern, which is then removed, and the sand remains in position. The pig iron, which has been remelted in a furnace, is then poured in its molten state into the mould, filling the space made by the removal of the pattern. To prevent the casting from being solid and tremendously heavy, a core made of silica sand, bonded with clay or some organic material, is inserted in the gap left by the pattern, before the molten iron is poured in, so that the casting exactly follows the exterior of the pattern, but is hollow within, the extent and shape of the hollow being determined by the dimensions of the core. When the molten metal cools and the casting is firm, it is removed from the moulding box, and the sand shaken off. This is a very simplified description of the casting process in a foundry.

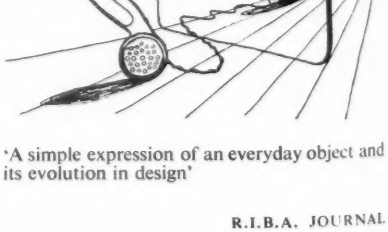
Another and totally different example of the partial fabrication of materials is provided by a plywood factory. Here, very thin sheets of wood, which are known as veneers, are cemented together under pressure. These veneers are glued together with the grain of the wood running at right angles in adjacent sheets. Three-, four-, five-, or more plies may be built up, and the plywood may be faced with thin sheets of metal or plastic, thus becoming a composite material which can be used in furniture, radio sets, coach building, aircraft, and for many different purposes in building.

(3) *Factories making finished goods:* In a factory which is producing finished products, you may see a modernized version of some ancient process which has a craft basis, or some entirely modern example of the mass production of a commodity that passes along the assembly line and gradually acquires its form as part after part is added. All kinds of materials and processes may have gone to the making of these individual parts, and if, for instance, the commodity is a piece of static machinery, such as a typewriter, you'll find small iron castings, aluminium castings, steel, rubber, plastics, and often a base made of plywood on which the machine stands. Partially fabricated materials, such as plywood and plastic sheets, or parts that have been finished elsewhere, such as iron or aluminium castings or steel pressings, are brought to the factory where they are all finally assembled.

There is a certain family likeness among industrial processes: and without risking one of those tempting over-simplifications, it may be said that *most materials are fabricated through temperature changes, the application of pressure, or the result of chemical action.*

If you have a groundwork of knowledge about the processes and methods used for obtaining raw materials and giving them the form in which they can be transported to the place where they are to be fabricated, you have made a good start for studying the characteristics, properties and possibilities of any particular material or group of materials; and that study can be amplified directly you have a specific problem which demands the use of those materials. Suppose, for example, you have to produce a design for some light object and you decide that the best material for the purpose is aluminium. If you are commissioned to produce such a design, you should either ask those who commission you to give you facilities for studying the properties and methods of fabricating this particular material, or, if you want your investigation to be independent, seek such facilities yourself. Even if you are not commissioned by anybody, and you want to make some experimental designs for your own information, then you would find no difficulty whatever in obtaining all the help you want for studying from firms specializing in the fabrication of aluminium and its alloys. Enterprising manufacturers are always ready to encourage people to know all about the practical applications, properties and possibilities of their materials. Try to see the inside of as many factories as possible: don't be shy about this: unless you ask you won't have a chance of seeing anything, and most manufacturers are proud of their works, and like people to see them. Some even organize conducted tours.

In making these suggestions for the structure of your studies, I do not want to imply that you should neglect anything you are already studying; but what I have said does indicate that studies which will enlarge your knowledge of industrial design are complementary to those studies you undertake as an architectural student. With the increase of standardization in the building of houses, with the factory production of houses becoming an industrial rather than an architectural problem of design, architects during the second half of this century will find that patronage is changing, has indeed already changed, and although they will still seek, for the bulk of their work, clients who wish to build something, they will, I suggest, look increasingly to industry to provide them with problems of design, and they will thus secure industrial clients, and give the powers of their trained imagination to restoring the benefits of good design to thousands of manufactured commodities. The architect may thus resume the responsibility which he should never have discarded, and the world will be a better place to live in and to look at when he does so. Look what architects have already done in this field: they have redesigned ships, railway rolling stock, furniture, radio and television sets, cooking and heating appliances—one could elaborate the list; but that is what I hope you are going to do during the second part of this century.



'A simple expression of an everyday object and its evolution in design'

The Use of Aluminium Alloys

by E. G. West, Ph.D., B.Sc.

Read at a meeting of the R.I.B.A. Architectural Science Board on 7 May 1947
Mr. R. H. Sheppard [*F*], in the Chair

THE USE of aluminium and the light alloys in building progressed steadily for some forty years until the outbreak of the 1939-45 war, during which these metals were confined to armaments manufacture. During the past two years interest in aluminium, both for established and new applications in building, has increased to an almost embarrassing degree and many of the recent developments are due to the realization that the characteristics of aluminium render it at least as technically suitable as the conventional materials. These developments are not short-time substitutions for materials in poor supply. It is thus opportune to review the present position, as follows :—(I) The characteristics of aluminium and aluminium alloys of special interest to architects. (II) Some existing applications of aluminium in building. (III) The present position of new and experimental uses of aluminium in building. (IV) Points requiring attention when designing in aluminium.

Characteristics of Aluminium of particular interest in Building

Groups of Alloys. It is desirable first to clarify what is meant by the word 'Aluminium'. Strictly speaking, it means the metal itself in various grades of purity from 99 per cent upwards, but today 'Aluminium' is often taken to cover any one of the family of aluminium-base alloys or the metal itself. This is unfortunate as there exist very considerable differences between the various aluminium alloys, and appreciation of these differences is of the greatest importance in the proper application of aluminium or a suitable aluminium alloy to a specific building component. It may be noted that in U.S.A. the word 'Aluminium' is generally accepted for both the pure metal and the aluminium-rich alloys. For many years aluminium and its alloys have been covered by Standard Specifications, intended primarily to meet Service requirements, and in the present Paper the STA/7 Schedule designations are used. There are also in use, of course, many trade names, but it may be noted that a new series of British Standards on Aluminium Alloys for General Engineering Purposes will be issued in the near future.

The architect, the engineer and the building operative are less concerned with the composition of the particular material than with its properties. It is, however, essential that there should be a full appreciation of the wide differences in character of the various available alloys in order that only the most suitable metal is employed for a particular purpose. Expert advice should be sought when deciding the material specification and in the following paragraphs a summary and general guidance only can be given for each alloy group.

The aluminium alloys are divided into two main groups: the casting alloys and the wrought materials. In general, casting alloys are not usually available in the wrought forms—plate, sheet and strip, sections and tubes, forgings, wire and rivets—and vice versa.

Pure Aluminium and the Non-Heat-Treatable Alloys. Aluminium itself is generally available in three commercial grades varying from 99 to 99.8 per cent minimum purity and there is also a grade of 99.99 per cent ('super-purity') metal, which is used only for special purposes at present. Pure aluminium is seldom used in the 'as-cast' condition, but a great deal is employed in wrought forms. Its mechanical strength of 5 to 8 tons per sq. in. is low but it possesses high ductility. Aluminium of 99 per cent purity is familiar to most architects as it has been used extensively for trim, shop fronts and the like. The higher grades—99.6 and 99.8 per cent—are being increasingly used as lighting reflectors, usually electro-brightened and anodized. The low alloy containing essentially 1¼ per cent manganese (AW.3) is generally similar to commercial purity aluminium but has a higher tensile strength.

The aluminium-magnesium alloys—AW.4, AW.5, AW.6 and AW.7—contain 2, 3.5, 5 and 7 per cent magnesium respectively, with small additions of manganese and possibly chromium. These alloys have tensile strengths ranging from 9 tons per sq. in. in the case of the 2 per cent alloy in the soft condition, to over 20 tons per sq. in. in the case of the 7 per cent magnesium alloy. All these materials are available in a variety of tempers depending upon the amount of the cold working they have undergone, and those with the low alloy content can be very readily cold formed. The pure metal and all these alloys resist corrosion extremely well and are well suited for anodizing—a process described later. Except those in the higher magnesium ranges, they are easily fusion welded, but the lower alloys, like pure aluminium, are not used in the 'as-cast' condition.

High Strength Heat-Treatable Wrought Alloys. The heat-treatable alloys fall into two main groups: those containing copper, and the copper-free alloys. The copper-containing alloys are used almost entirely for structural purposes where their high strength—20 to over 30 tons per sq. in.—is essential, but their resistance to corrosion is lower than that of the non-heat-treatable alloys and the copper-free magnesium-silicide alloys (AW.9 and AW.10). These latter are very readily extruded, can be anodized readily and may also be welded. Combination of high strength and good resistance to corrosion can be secured in the case of sheet and strip by the use of the clad material mentioned later.

The statue of Eros in Piccadilly Circus, cast in aluminium in 1893

Casting Alloys. The casting alloys fall into three main groups: the aluminium-silicon series containing basically 10-13 per cent silicon (AC.6); the aluminium-copper alloys often containing silicon additions (AC.1, AC.2 and AC.4); and the aluminium-magnesium alloys (AC.5 and AC.10). The aluminium-magnesium alloys possess maximum resistance to corrosion and are followed next by the aluminium-silicon series in this respect. Several special purpose alloys have not been mentioned but there is no doubt that the range of strength properties covered by aluminium and its alloys—cast and wrought—is wide enough for all building purposes.

Physical Properties: The best-known property of aluminium and its alloys is the low density of 2·7 average, i.e. about one-third that of ferrous materials, of copper and its alloys, and of zinc. A cubic foot of aluminium alloy thus weighs about 172 lb., which may be compared with an average of 140 lb. for concrete or 486 lb. for steel. The co-efficient of expansion averages 24×10^{-6}, i.e. twice that of mild steel. The thermal and electrical conductivities of aluminium rank next to those of copper, and the aluminium alloys also possess high conductivities. Aluminium has high reflectivity, and this characteristic is of particular value in its use as a thermal insulator. Aluminium in the form of foil is extensively used for insulating purposes as it reflects heat instead of absorbing it. The following figures indicate its effectiveness:

B.Th.U/sq. ft./hour for 1 in. thickness and 1 degree F. difference in temperature: Slab cork 0·3 average, glass silk 0·2 to 0·3, common timbers 0·81 to 1·11, asbestos slabs

0·33 to 0·37, plaster board 1·1, concrete with gravel aggregate 6·7, single layer aluminium foil in 1 in. air space 0·25.

Appearance and Permanence: The appearance of aluminium and range of surface finishes applicable to it and the aluminium-rich alloys have been generally appreciated by architects, but certain doubts are sometimes still expressed in respect of corrosion resistance. It is not generally appreciated that the resistance to corrosion of aluminium and the aluminium-base alloys is considerably greater than the resistance of mild steel to rusting, and many examples can be quoted of the successful use of aluminium alloys for severe conditions such as marine purposes, e.g. dinghies, ships, lifeboats, and, indeed, complete vessels up to 100 ft. motor cruisers. The resistance to corrosion is high because of the thin film of oxide always present on the surface of aluminium-base materials, this coating being self-healing when damaged. Any corrosion which occurs causes an adherent deposit to form, and this is protective against further attack. The resistance to corrosion of the alloys varies according to the composition, the alloys containing copper being of somewhat lower resistance than the copper-free materials. Particular attention is drawn to aluminium-clad sheet and strip where maximum resistance to corrosion combined with high mechanical strength is conferred by coating the high-strength alloy core with pure aluminium. This protects the copper-bearing alloy sacrificially, i.e. the coating is attacked preferentially in the same way as the zinc on galvanized steel is first removed. Anodic oxidation is the electrolytic process by which the natural film of oxide may be increased in thickness from 4×10^{-8} to more than 0·001 inch. The film increases the resistance to corrosion and to abrasion, and at the same time allows the surface to be coloured by impregnation with dye-stuffs and inorganic pigments. A British Standard Specification is being drawn up to cover the performance of anodized aluminium.

Mechanical Constants. The average values for the mechanical constants of aluminium and the aluminium alloys are: Modulus of elasticity (E) $= 10 \times 10^6$ lb./sq. in., torsion modulus $= 3{\cdot}9 \times 10^6$ lb./sq. in., Poissons ratio $= 0{\cdot}36$.

Working Characteristics. Working of aluminium and the alloys is normally carried out cold, although hot forging is applied to certain high strength alloys. Machining and cutting operations present no particular difficulties. Joining may be by means of aluminium or aluminium alloy rivets which are closed cold; by gas or metallic arc welding; and in certain cases by spot welding. Hot driven steel rivets may be used successfully on aluminium alloy structures. Some progress has also been made in the use of plastic jointing materials. In addition to the anodic oxidation finish aluminium may be electro-plated and can, of course, be coated with paints and other organic finishes. Considerable experimental work is taking place on the development of suitable vitreous enamels for aluminium alloys. Full information is, of course, available on such working and finishing processes.

Existing Applications

Glazing Bars. Glazing bars form a striking example of the justification of aluminium, for the designer is able to take advantage of the extrusion process to obtain sections free from the limitations of rolling, thus allowing a much wider choice of section. Furthermore, the high resistance to corrosion of the aluminium alloys chosen for this service (AW.9, AW.10, AW.4, etc.) greatly reduces the cost of maintenance, and in most cases no surface finish has been applied to the bare metal. Many aluminium alloy glazing bar installations have now been in service for over fifteen years and examinations have confirmed the suitability of the material for this application. For example, the lantern lights at the Hammersmith Hospital, installed in 1935, were of AW.10-type alloy and were not treated or painted in any way. Examination some 18 months ago showed that they were covered with a superficial greyish-black film consisting partly of aluminium hydroxide and small quantities of other salts, together with soot and other organic matter. Light rubbing was sufficient to remove this film and reveal bright metal below it, the surface being substantially free from pitting. It is interesting that in this case lead webs had been in close contact with the aluminium, but there was no sign of electrolytic action which might have been expected from laboratory tests. Similar aluminium alloy glazing bars used in the roof lights of several pumping stations of the Metropolitan Water Board have also been examined and, apart from the usual layer of dirt and corrosion product, were found to be in excellent condition. The amount of corrosion which had taken place in all these cases was so small as to leave no appreciable effect on the cleaned surface of the metal and it must be remembered that the corrosion which takes place forms a film which is itself an excellent protection against further attack. On an installation at Dudley Zoo—the roof of the circular birdhouse which had been in place since 1937—no appreciable corrosion product was found on alloys of the same type, although a single bar was covered with a rather more substantial film of white aluminium oxide than the others, but the cause of this could not be established.

Windows. Aluminium windows were used before the war in many well-known buildings such as the University Libraries at Oxford and Cambridge; Arlington House, St. James's; many London and provincial shops and showrooms.

In some installations the aluminium alloy had been anodized, but it is regrettable that in certain instances the anodic film was too thin and discontinuous, with the result that instead of improving the resistance to corrosion, it had the opposite effect and resulted in more rapid attack at the discontinuities. In spite of this, however, there have been few failures of aluminium windows, and examination of numerous installations has confirmed the view that suitably chosen alloys are admirable for windows, doors, and the like. Hitherto aluminium windows have been constructed by fusion welding of mitred corners of Z sections based almost entirely on existing steel designs. Although this has been satisfactory up to a point the advantages of the extrusion process have not been fully exploited especially for hollow sections of great rigidity. Confidence in the results obtained to date should now allow architects to make better use of the aluminium alloys based on their particular characteristics.

Roof Coverings. It is surprising to many people that aluminium has been used as a roof covering material for a long period, some examples being more than 50 years old. The roof of a Government building in New South Wales was covered with aluminium corrugated sheets before the end of the last century and when examined some 40 years later the metal was found to be in an excellent condition except where copper fixing nails had been wrongly used, some accelerated attack having occurred. All these early uses of aluminium as a roof covering took the form of sheeting laid in very much the same way as other metals used for this purpose, but some slight experience was also gained on the use of aluminium for tiles or shingles. A small private workshop was roofed in 1913 with 22 gauge aluminium interlocking tiles some of which were anodized and some left unprotected. After more than 15 years in a suburban atmosphere, this roof was found to be in perfect condition.

Shop Fronts and Doors. Aluminium was applied fairly extensively from about 1930 onwards to shop fronts, in the form of extruded sections, strip drawn on wood, and sheet work. In nearly every case the material was anodized, but again films of insufficient thickness and poor continuity were sometimes applied with disappointing results. Many shop doors were also made of aluminium, and these showed useful savings in weight—20 per cent to 50 per cent—compared with similar doors of timber. Included in this heading may be mentioned the entrance doors and trims to the façade of various buildings, such as banks, hotels and flats. In all cases where the metalwork had been kept reasonably clean by occasional washing down, examination showed the results in service to be excellent, and even after several years of wartime neglect the metal was still structurally sound although in some cases pitting had occurred. The experience gained as a result of these applications should now prove most useful in the rebuilding of shops and similar premises. Aluminium was applied to many items of 'ironmongery', in particular door and window furniture, but in some cases the aluminium articles suffered by comparison with those of other materials through poor design; and this was often due to lack of appreciation by the designer or manufacturer of the particular characteristics of aluminium. Many such items were produced as castings, and, unfortunately, the best alloy was not always chosen for the purpose. A great deal of first-class work was produced by machining

from extruded sections, but little use has hitherto been made of the very convenient process of hot stamping for aluminium alloy components of this kind.

Statuary. No paper on the architectural use of aluminium would be complete today without mentioning statuary, particularly as one of the finest examples of the sculptor's art, 'Eros' in Piccadilly Circus, was cast in aluminium in 1893. This statue, when examined in 1936 by Professor Hutton and Dr. Seligman, was found to be in excellent condition apart, of course, from the layer of grime which had been collected. More recently the statue has been examined again after a further period in Piccadilly Circus and an even longer period of enforced hibernation during the war. Apart from superficial attack there has been little change in the statue since its previous examination, and we may look forward with confidence to its early restoration and continued long life.

Another early example of aluminium statuary is in the possession of the Aluminium Development Association—a classical figure cast in Paris at some unknown date. This statue—unlike 'Eros,' which is of pure aluminium—is an alloy containing 2 per cent silicon and 1 per cent copper. Doubtless there are other examples of the early use of aluminium for this purpose; and quite recently a head by Frank Woodford, R.A., has been cast very successfully in aluminium. Attention is now drawn to the technique of low relief carving in aluminium, which has been recently developed by Mr. Friese-Greene. At this stage of development it is a new form of smithcraft inasmuch as the smith produces his own series of tools for cutting and chiselling away; and in the making up of the tools in both iron and steel tempering, hot and cold working processes are involved. Probably the first examples of this technique were seen in the murals which formed part of the 'Aluminium from War to Peace' Exhibition in 1945, and considerable development has taken place since that date.

Present Position of New Uses

Aluminium in Prefabricated Houses. The choice of aluminium alloys for one of the prefabricated temporary bungalows did much to force the attention of the architectural profession and the building industry upon the use of aluminium for domestic buildings. The aluminium bungalow is entirely shop-fabricated and, as is now well known, is conveyed to the site in four completely finished sections which are erected and assembled by trained teams in only a few hours or, in some cases, less than an hour. Although these bungalows are in the temporary housing programme there is little doubt that the materials of which they are constructed will be in excellent condition at the end of their 10-year life. Developing from experience of this scheme aluminium prefabricated bungalows have been designed and manufactured for tropical use where their permanence compared with timber is a major advantage. Appreciable quantities of aluminium alloy have been used for other systems of prefabrication including permanent houses. For example, the Riley house employs corrugated aluminium panels for the outer cladding of the upper storey, and the Rotinoff two-storey house is based entirely on aluminium alloy structural members and aluminium alloy roof and wall cladding. The high strength-to-weight ratio of the aluminium alloys used has made it possible to adopt a most interesting method of prefabricating the Rotinoff house.

Turning from complete houses to components, it is of interest to record that roofs are being designed for application to normal houses and other buildings. One design is for one of the more conventional prefabricated permanent houses, using aluminium alloys for both roof structure and covering. In this roof formed aluminium alloy strip is used for the structural members and the aluminium-manganese alloy for the reeded cladding sheets. The total weight of the roof for a pair of semi-detached houses is 16 cwt., comprising approximately 8 cwt. for the structure and 8 cwt. for the covering. It is not yet known, however, whether this or other designs will eventually be employed. The trend towards aluminium for roof and cladding of normal houses is also apparent in North America, where interlocking aluminium shingles are being applied on a large scale. One example is stated to weigh only 40 lb. per square and comprises interlocking side and head laps, including two water breaks. In Canada also both shingles and aluminium clap boards are being used extensively. The clap board is of hard aluminium-manganese alloy, 0.028 inch thick, and can be applied in lengths up to 24 ft. It is likely that a well-designed aluminium tile or shingle—considerably larger in area, of course, than the conventional slate tile—would find a steady permanent market on account of its ease of transport and rapidity of laying, combined with the required permanence and strength available in a suitably chosen alloy.

Rainwater Goods. Little attention was devoted to rainwater goods until recently, as may be seen from Study Committee Report No. 13 on non-ferrous metals. Today, aluminium gutters, with all the ancillary fittings, are being produced in large quantities, both as castings and fabricated from sheeting. So far the design has followed either cast iron or the conventional wrought forms and some measure of standardization is now being achieved. However, further investigations are in hand with the object of developing designs more suited to aluminium, and it is likely that they will more than hold their own, both from the technical and economic aspects. Experience with these aluminium rainwater goods is satisfactory to date and there is no reason to doubt that they will have a satisfactory life. Reports from the building industry already indicate that aluminium rainwater goods are popular with workmen because of their low weight and the ease with which they may be cut and formed to fit. Soft aluminium sheet has proved satisfactory for flashings, the only essential protection being to coat with a layer of paint those portions of the metal that are in contact with wet cement mortar. Roof ventilators, cowls and louvres are also readily fabricated in aluminium or one of the aluminium alloys.

Windows. Recent progress in aluminium alloy windows is indicated by the fact that at least two concerns are now producing large quantities for temporary and permanent houses. Two methods are being used, namely die-casting and fabrication from extruded sections—by flash welding among other methods. Cast windows are not suitable for anodic oxidation, but windows made from wrought material can be anodized, and the film provides a satisfactory surface finish or a good basis for paint. The development of more suitable sections is also in hand to take full advantage of the extrusion process. Another interesting development is the possibility of using aluminium for sliding sashes, and it is hoped that the various problems will be solved before very long, particularly in view of the popularity of this type of window among architects and householders.

Structural Uses. Aluminium is being increasingly used for roof trusses in buildings where the deadweight of a large roof span is a considerable proportion of the total load on the supporting members. The reduced maintenance required for aluminium makes it especially suitable for high buildings of large floor area such as aeroplane hangars and film studios where the erection of scaffolding for repainting interferes seriously with the use of the building. The application of aluminium to roof structures of railway stations, unloading sheds at docks, etc., where corrosion of all metals is a serious factor, is now obtaining greater attention. An interesting application making use of the low weight, high strength and high corrosion resistance of aluminium alloys is that of canopies for cinemas and theatres, and this provides special problems for solution jointly by the architect and the structural engineer. Several such canopies have now been erected with complete success. A structural application of some interest is an aluminium alloy penthouse on the roof of an existing foundry building in Canada. The low weight of this structure enabled the original building to withstand the addition without new footings or supporting columns and there was no interference with the work of the factory below. This penthouse was made of aluminium alloy structural members covered with a roof of aluminium sheet insulated with rockwool, and the sides were of aluminium alloy clap board. The doors, screens and louvres were also of aluminium or aluminium alloy.

Sinks and Kitchen Equipment. Aluminium alloy sinks have been produced during the past two years, both as castings and fabricated from sheet, and a great many are now in use. Personal experience of one of the early sinks and draining boards made of welded aluminium alloy sheet has proved them to be extremely satisfactory during the past 18 months. No difficulty has been experienced either in its fitting or subsequent

use, and cleaning is very simply carried out by very fine wire wool and water. Many such sinks have been built into complete kitchen units in which aluminium alloy is extensively used. The low weight of aluminium is particularly advantageous in such units, which have to be transported complete, and the high resistance to corrosion avoids the development of rust spots or stains after a period of service in the atmosphere peculiar to kitchens. Aluminium is not at present recommended for plumbing items such as hot or cold water service pipes, taps, cocks and storage tanks as there has been insufficient experience on the ability of the metal to withstand corrosion by the various potable waters encountered in this country.

Staircases, etc. Some interest is being taken in the use of aluminium for inside staircases and particularly for outside fire escapes. Cast units can be readily assembled and are expected to give completely satisfactory service. A minor but interesting use of this kind is the aluminium loft ladder which can be readily handled and stored.

Insulation. Finally, mention must be made of the ever-extending use of aluminium foil as a thermal insulator. This is not only suitable for large buildings, but may well prove a very popular means of conserving heat as it would entail merely laying a few layers of foil (either plain or crumpled) in the loft, or between the floor boards and ceiling of individual rooms. Some work has also been done on the use of paper-backed foils which may be applied to the walls.

Designing in Aluminium

Success in the further application of aluminium to building can be achieved only when close attention is given to design at all stages of the project. At present it is specially important to appreciate the fundamental differences between aluminium and other materials, as mistakes made now will lead to serious misconceptions and disappointments in the future. First, it is necessary to appreciate the basic differences between the mechanical properties of aluminium alloys and other structural materials, particularly the modulus of elasticity. As the modulus is approximately one-third that of steel and two-thirds that of cast-iron, allowance must be made for the greater deflection obtained for a given load. This, of course, applies particularly to structural portions where a deflection limit may be necessary to avoid cracking of plaster, etc. An aluminium alloy beam of form and dimension similar to a steel beam is, of course, about one-third the weight of the latter for equal strength but for equal deflection the moment of inertia of the aluminium alloy beam must be increased. This may be accomplished in many ways, of course, but a typical example is to increase the depth to 1.4 times the depth of the steel beam and increase the area of the flanges by 50 per cent giving the aluminium alloy beam half the weight of the steel beam. Alternatively, the area of the flanges could be kept the same and the depth of the beam increased to about 1.7 times the depth of the steel section. In a similar way aluminium sheet must be thicker than steel sheet for equal elastic deflection and again for equal stiffness a saving in weight of 50 per cent is possible, as indicated below:—

Thickness of Covering Sheet Necessary for Equal Resistance to Bending

Necessary Sheet Thickness for Equal Stiffness	
Steel	Aluminium Alloys
0·040″	0·059″
0·060″	0·087″
0·079″	0·115″
0·120″	0·170″

E (Steel) = 30×10^6 lb. sq. in.
E (Aluminium Alloys) = 10×10^6 lb. sq. in.

It must also be appreciated that the lower value of Young's Modulus allows impact shocks to be cushioned to a greater extent with aluminium alloys than cast iron. Stresses caused by misalignment of members may also be reduced because of the lower elastic modulus.

In designing structural members attention must be paid to the use of the 0.1 or 0.2 per cent proof stress which may be taken as approximately analogous to the yield point obtained in the tensile testing of steel. The high ratio of proof stress to ultimate stress in the case of the high strength aluminium alloys should also be noted, and it is likely that a lower factor of safety than the usual 3.75 on the minimum ultimate stress of steel can be used with aluminium alloys. Full data are available on the shear and bearing properties of aluminium alloys used structurally and some typical figures are given in Table I. There is also a great deal of information on fatigue and it should be noted that certain of the aluminium alloys follow the same form of S/N curve as steel whilst others are of the general form common to other non-ferrous metals; i.e., the curve does not become parallel to the horizontal axis even after a great many cycles of stress. Information has also been published on the designing of struts in aluminium alloy, taking into account the elastic modulus and tensile properties. Certain researches on this aspect of aluminium alloy structural design will be published shortly.

Table I
Shear and Bearing Properties

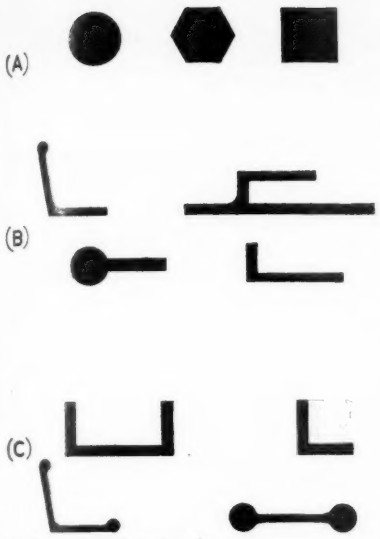
Material	Brinell Hardness Number	Shear Strength (tons/sq. in.)	Bearing Strength (tons/sq. in.)
AW.5	40–65	7–10	27–36
AW.15A and AW.15E	100–120	15–16	43–46
AW.7A	70–80	16	
AW.15D	130–155	18–20	
AW.15B	130–155	18–20	

Contact with Dissimilar Materials. Electrochemical corrosion is always liable to occur when two dissimilar metals are in contact in the presence of moisture, the metal of lower potential suffering preferential attack. Table II indicates the difference in electrolytic potential between various metals and pure aluminium. Under the conditions of this particular test electrolytic action between aluminium-base materials and the other metals of higher potential results in preferential corrosion of the aluminium, but these potential figures can be taken only as a partial guide because the amount of corrosion depends on the actual current which flows and this, in turn, is affected by the resistance between the metal surfaces. Thus, the resistance offered by the film of aluminium oxide always present may be sufficient to virtually prevent electrolytic attack. Indeed where the other metal in contact with aluminium is also covered by an oxide film of low conductivity (for example, lead or stainless steel) there is little or no electrolytic corrosion under most conditions. Electrolytic action can, however, be readily prevented by insulating the surfaces of aluminium alloys and the other metal by means of a coating of paint or a bituminous compound which is normally sufficient for this purpose. Where any contacting surfaces are brought together they should be suitably sealed to prevent the attraction of moisture between them by capillary action. It should be particularly noted that contact between aluminium-base materials and copper or copper-base alloys is the most likely cause of electrolytic corrosion when aluminium is applied to building, and it is desirable to avoid such contact. Contact with ordinary steel produces little effect, except under severe conditions, and this can be completely avoided by galvanizing or cadmium-plating the steel.

Table II
Electrolytic Potentials of Several Metals Against Pure Aluminium*

Metal	Potential (mv.)	Metal	Potential (mv.)
Magnesium	—850	Tin	+300
Zinc	—350	Brass	+500
Cadmium	—20–0	Copper	+550
Pure aluminium	0	Stainless Steel	+400–700
Aluminium Magnesium alloys (AW.5, AW.7C)	+100		
Duralumin-type alloys (AW.15A, AW.15E, etc.)	+150		
Iron and mild steel	+50–150		

* Based on Table III, Electrode Potentials of Metals, Turnbull and Davis, Ministry of Aircraft Production, R. and M. No. 1901 (6,204). A.R.C. Technical Report, H.M.S.O., 1942



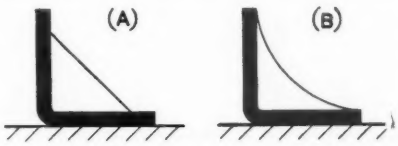
(A) Symmetrical sections
(B) Section giving unbalanced flow
(C) Section giving balanced flow

Design of Joints. In the design of joints between aluminium members, account must be taken of the method of fabrication and the finishing processes required. Fusion welded joints in aluminium must be such that all traces of the flux which is used in the process can be removed, and this in practice means the use of butt joints only, as fillet welds and lapped joints prevent the complete removal of flux residues and slag. The heat-treated alloys are not suitable for fusion welding as the increase in temperature reduces their high strength. Detailed information on the design of spot welded and riveted joints applicable to the high strength alloys is available. When anodizing or electro-plating is required as the finishing process on aluminium components, lapped joints again must be avoided as the solution used for these processes cannot be completely removed from such joints, with the result that liquid seeps out during the course of time, causing a stain or possibly corrosion. Again, expert advice should be sought in the designing of components which have to be anodized or plated.

Anodizing and Plating. The process of anodizing cannot be successfully applied to all aluminium alloys, particularly when a light coloured finish is desired. Castings are not usually suitable for anodizing as the grain structure may be revealed, and any pores at the surface mar the final appearance. Likewise castings to be electro-plated must be completely free from pores, cracks or other defects either at or just below the surface.

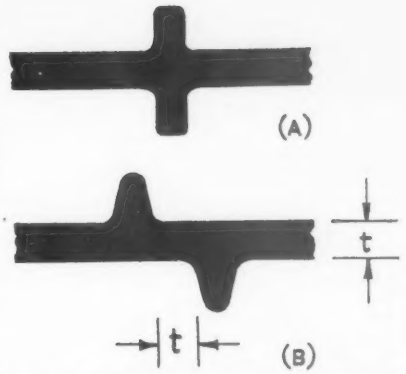
Designs of Extruded Sections. The extrusion process is extremely valuable because it enables the designer to use special sections at little, if any, additional cost. In this process a cylindrical billet of metal is heated to the appropriate temperature, and forced by hydraulic pressure through a die of the required section: an infinite variety of solid and hollow shapes may be thus produced. Although there is practically no limit to the complexity of shapes, certain fundamental points must be kept in mind by the designer, to enable sections to be produced economically and to the required dimensional accuracy. The producer of extruded sections desires as symmetrical a flow of metal as possible through the die. The speed of extrusion is greatly reduced, and hence the cost is increased, if the section has sharp corners, and a radius as small as 0.03 inch is sufficient to increase the life of the die and the speed of extrusions by a significant amount. Rapid changes of section, and changes in thickness, should be modified by the introduction of tapered portions and rounded corners, in order to reduce extrusion troubles; and when parts of the die are partly enclosed by the section, or when thin tongues of metal form part of the die, the die life is reduced unless the shape can be modified. The minimum thickness that can normally be extruded is about 0.03 inch, but if the section has long arms, these must be thicker. A limited range of standard structural sections is laid down in BS.1161, and this includes tolerances on dimensions for standard shapes. The use of extruded sections should not, however, be confined to the standards, as this tends to prevent development in design, and the architect and structural engineer will benefit by consulting the makers of extrusions so that the most efficient section can be produced for a particular purpose, at the lowest possible cost.

Casting. The detailed processes involved in the production of satisfactory aluminium alloy castings need not concern the architect, but it is desirable that there should be some appreciation of the basic foundry facts influencing casting production. The first need is, again, to consult the foundry expert at an early stage in the design, so that the most appropriate alloy from the point of view of strength, finish and method of production, can be decided. In the design of castings, sharp corners should be replaced by rounded ones, and radius must be provided wherever there is a change of thickness of the section. Changes in thickness of section should be as gradual as possible, and large, flat, horizontal surfaces in the mould should



(A) Stiffeners that may give rise to concentrations of stress
(B) This form of stiffeners is to be preferred

be avoided. Stiffeners should be located after consultation with the foundryman in order to avoid stress concentrations. There is virtually no limit to the size of sand castings that can be produced, and there is no definite upper limit to the size of gravity die castings, although the maximum produced up to the present day is about 120 lb. Pressure die castings are more limited in size, according to the machines available, and the maximum weight in aluminium is at present about 10 tons.



Stiffening ribs on flat surfaces should not be as (A), which thickens the section, but as (B) where they are off-set by at least the thickness of the section

Clearly it is impossible to deal at all comprehensively with all the factors affecting the design of satisfactory structures or architectural features in aluminium in a paper of this kind and, in any case, there is no single solution to any particular design problem. The architect must first acquire as much knowledge as possible about aluminium and its alloys and then apply it in the light of the manufacturing facilities available for the production of particular items. At all stages in the preparation of designs assistance should be sought from experts in the material, such as metal suppliers or fabricators, not only to ensure that the ultimate design can be executed economically but also that the latest results of research can be applied in every case. Ample facilities for disseminating such information are available, and the aluminium industry itself fully realizes the magnitude of the problems which it must face jointly with the architectural profession in establishing firmly aluminium and its alloys as permanent building materials.

DISCUSSION

Mr. George Kalmar said the subject of the lecture was of first-rate importance to architects, as it was one of the chief responsibilities of architects to learn about any material and to express themselves rationally and selectively within any given medium. He felt that, on the whole, aluminium sections were rather apt to be treated on steel-design principles instead of being given a life of their own. That was especially the case, as Dr. West had mentioned, in pre-war casement window sections, which the steel window manufacturers made of the usual simple Z type, without taking advantage of any structural stiffening of the cross-sectional area, which was so readily afforded by the extrusion process. He felt that the inherent resilient nature of the material should encourage further research into clip

sections, especially in connection with glazing bars and beads. Sheet aluminium, preferably in some corrugated form, could be used in a truly structural capacity. Dr. West had shown a picture of the Rotinoff house, for which, as it happened, Mr. Nickson had been architectural consultant. In the case of that house a corrugated skin was used in two functional forms, one being a weather-resisting skin and the other being a truly stressed membrane. The whole structure of the house actually rested on the skin, like any traditional brick buildings. Therefore it seemed that the vertical application of corrugated sheet should be investigated by architects. There were two questions which he would like to ask Dr. West on the subject of anodizing. First, would he kindly elaborate a little further on the aspect of concentrated corrosion due to any discontinuity of the anodic film? Dr. West had mentioned the self-sealing properties of aluminium, but what was the effect of a discontinuity of the protective skin owing to any damage? Secondly, what was Dr. West's view in relation to the permanence of colour in anodizing, and could one look forward to any standardization of the colour range? Another point worthy of discussion was, he thought, the fire risk of aluminium, especially as Dr. West had mentioned fire escape ladders. Compared with other metals, what was the relationship of danger point and actual melting point of aluminium?

Mr. F. J. Samuely said there were certain points on which he thought Dr. West could supply information which would be extremely valuable to architects and engineers. One was the question of colouring and anodizing at the same time. He understood that there was a certain number of colours which were fast and others on which one could not rely. In some cases it was the practice to anodize and paint afterwards, and in other cases those processes were combined. If Dr. West could give some information about the circumstances in which one or the other course would be preferable, he thought it would be very interesting. On the question of substituting aluminium for steel structures, he would like to know whether a simple formula could be produced for that purpose.

Mr. M. Hartland Thomas [*F*] said there were certain matters which troubled architects when they began to think about designing in aluminium. For instance, they were often confronted by people who said it was practically impossible to weld aluminium, and he would like to ask Dr. West whether that was so, or whether it was merely very difficult or very expensive. With regard to the question of corrosion, he would be glad if Dr. West could enlarge on that a little and say just what was meant by corrosion. Dr. West had stated that corrosion of aluminium was considerably less damaging than rusting of steel, and personally he hoped that was so. Could aluminium be regarded as a material that could be left unprotected?

The Chairman said that a number of points with regard to the use of aluminium had occurred to him at various times and he would like to have the benefit of Dr. West's views on them. With reference to one of the points on which Mr. Hartland Thomas had touched, he thought it was a great disadvantage that whereas there was a tradition in the use of steel and other materials in building, a tradition which had grown up in such a way that an architect naturally thought of steel for one use or another, a definite selective effort was involved in asking oneself whether aluminium would be more suitable for a particular function and then, when considering that question more closely, finding there were no precedents for that use of aluminium and therefore no particular examples which one could go to see. Another question which interested him very considerably was the way in which the use of aluminium, at any rate in the past, had followed steel practice. That was particularly true in the case of the aluminium window, where the rolled steel section had been followed, possibly because it was an excellent section from the point of view of excluding the weather between two opening frames, but there were other methods of obtaining a section which was as stiff and probably distributed the metal more economically in the cross-sectional area. It was a great pity that the use of aluminium had proceeded so far without there having been made a number of carefully controlled experiments in its use.

Dr. E. G. West, in replying to the discussion, said that he agreed with the Chairman and Mr. Kalmar as to the undesirability of basing aluminium sections on steel sections and steel practice.

With regard to fire risk, that might seem to be very high in view of the fact that the melting point of aluminium alloys was about 600 degrees C., but in fact discussions with various experts in this field and a limited range of tests showed that the fire risk was not very different structurally from the risk with steel. A point which had been very well made recently in discussions with some Home Office officials on outside fire escapes was that if the fire escape became hot enough to melt it would be too hot to run down, and that applied to both aluminium and steel.

In reply to Mr. Samuely, he would say that colouring and anodizing in a single operation was not a commercial proposition. Painting was extremely successful over an anodic film. Anodizing provided the best possible surface for painting, but it was not necessary and it was unduly expensive to anodize before painting. There were chemical methods of putting on a suitable surface for paint which were much less expensive and just as effective. Anodizing alone, provided that the film was of sufficient thickness and was continuous, was a very good finish, but it could not be applied to most of the casting alloys.

The idea of a simple formula to assist one in substituting aluminium for mild steel was extremely attractive, but the many factors which would have to be taken into account in order to quantify all the differences between the materials would involve a very wide range of mathematics. He thought that a series of simple formulae might be devised when sufficient data had been collected, but at the moment, as far as he was aware, there were insufficient data for the purpose. The subject, however, would be borne in mind.

In reply to Mr. Hartland Thomas, he would say that the welding of aluminium was certainly not impossible. It had been carried out in this country on a commercial basis for over fifty years, but the fact that aluminium could be welded was not generally known, and it was a matter of very considerable concern to the aluminium industry to make known the methods of welding aluminium and the light alloys.

He had emphasized in his lecture the fact that the corrosion of aluminium was by no means as serious as the rusting of steel. Very often people said they could not use aluminium because it corroded, and when the point was put to them that steel rusted they said: 'Well, that is different; we know all about that, but we do not want something that corrodes.' He knew that Mr. Hartland Thomas appreciated that aluminium did not corrode at the same rate as steel. A great deal of thought had been devoted recently to the possibility of giving corrosion numbers or ratings to aluminium and other materials, for the purpose of comparison, but he was afraid it was not possible to do that at the moment.

BIOGRAPHICAL REFERENCES

Ref. (1) Wrought Aluminium Alloys in Post-War Building. *E. G. West, Association of Building Technicians*, 1943; Aluminium Alloys in Post-War Buildings. *E. G. West and D. V. Pike, Incorporated Association of Architects and Surveyors*, 1944.

Ref. (2) The Application of Light Aluminium Alloys to Structural Engineering. *D. V. Pike, Institution of Structural Engineers*, 1944.

Ref. (3) The A.D.A. Information Bulletins, Nos. 3–12. (Nos. 13 and 14 in preparation for publication shortly.)

Ref. (4) The Light Alloy House, *Architects' Journal*, 21 June 1945. The Aluminium House, Airoh Trading Co., Ltd. The A.I.R.O.H. House, Bristol Aeroplane Co., Ltd. Production of Prefabricated Aluminium Houses, *R.I.B.A. Journal*, July 1946, pp. 402–405. Aluminium Shingles, *Modern Metals*, Nov. 1946, pp. 31–32. New Aluminium Clapboard, Cresswell Roll Forming Co., Ltd., Montreal. All-Aluminium Penthouse, *Alcan Ingot*, 21 Feb. 1947, pp. 1, 4–6.

Ref. (5) The A.D.A. Information Bulletins, Nos. 6 and 8. Riveting Aluminium, Aluminium Company of Canada 1946. Riveting Aluminium and Its Alloys, Aluminum Company of America 1941. Tentative Standards and Recommended Practices and Procedures for Spot Welding of Aluminium Alloys, *Welding Journal*, Aug.1942, pp. 517–556. Design Data for Spot Welds in Aluminium Alloy Sheets. J. Ralston, *Product Engineering*, Sept. 1944, pp. 608–611. The Effect of Weld Spacing on the Strength of Spot-Welded Joints, R. Della-Vedowa and M. N. Rockwell, *Journal of the American Welding Society*, Oct 1942, pp. 514, S-523, S.

The City of London Plan described

Taken from the Official Report 'Reconstruction in the City of London', by Dr. C. H. Holden [*F*] and Professor W. G. Holford [*A*], Joint Consultants

THE PLAN clearly recognizes the unique character of the City of London as a gigantic office complex which contains and which will continue to contain (despite the nationalization of certain industries) the directive and financial brains of the British Empire's trade and industry. Located here are the headquarters' buildings of banks, insurance companies, trading concerns and manufacturers—large, medium and small—which means that the basic requirements and therefore the character of buildings are necessarily much the same all over the City. These requirements are first, office space with adequate day-lighting, proper and easy access for the huge daytime population to and from work in cars, trains, tubes and buses, on pavements, in lifts, corridors and staircases; secondly, provision for their lunch-time and tea-time feeding; thirdly, provision for the housing and education of the families of the relatively small population of caretakers and night workers. It is also recognized that many trades and industries are of necessity grouped, and that some, notably newspapers, must have workshops or factories attached.

Above, and in addition to this, is the clear recognition of the historical importance of the City. It is an ancient City with long traditions centred round Guildhall and the halls of the City Companies and, apart from any architectural merits which office buildings may possess, there are many buildings which are national monuments—the Wren churches, Company Halls, the Tower, the Temple and, above all, St. Paul's.

This realization of the unique purposes and character of the City underlies the Plan, and is clearly observable in all the proposals. The road plan and car park spaces are designed to accommodate double pre-war traffic; pavement space is to be increased in certain places by recessing existing ground floors behind arcades; facilities for restaurants and public houses are discussed; there are recommendations to meet the needs of the night population. Of particular importance, however, are the proposals for positive methods controlling building densities and of ensuring adequate daylighting of sites. Proposals are made for enhancing the settings of the Wren churches. Precincts are planned for the Tower, Guildhall and St. Paul's.

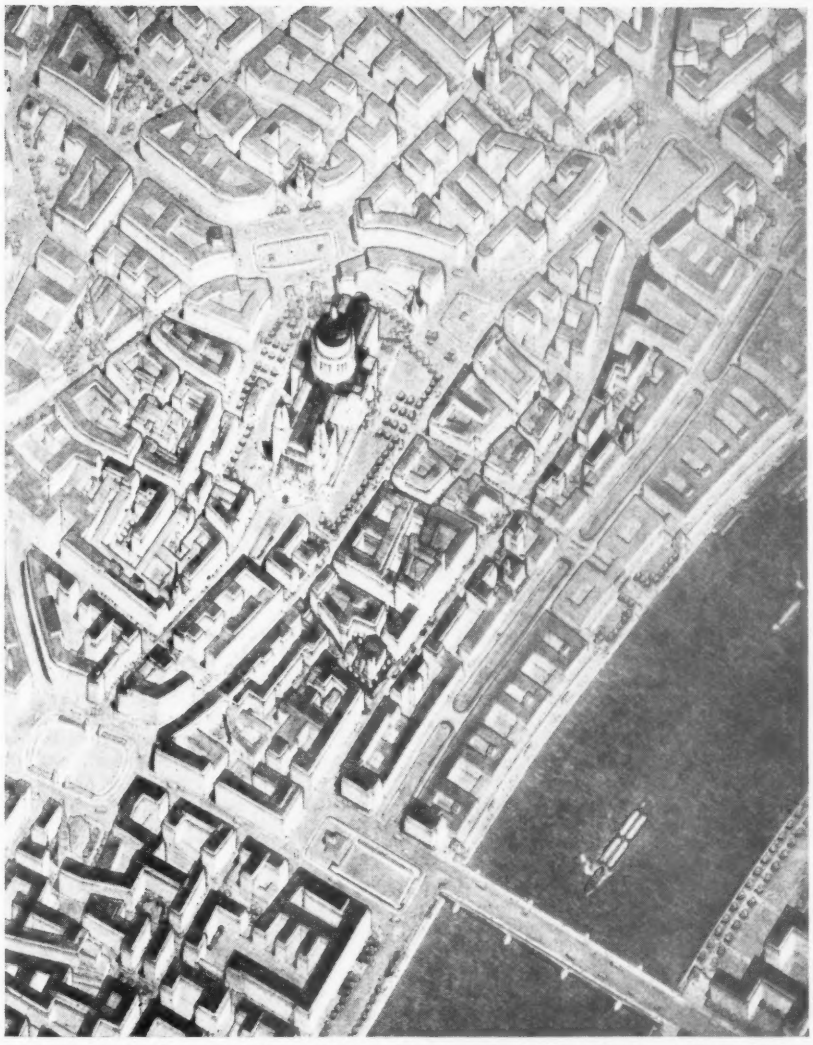
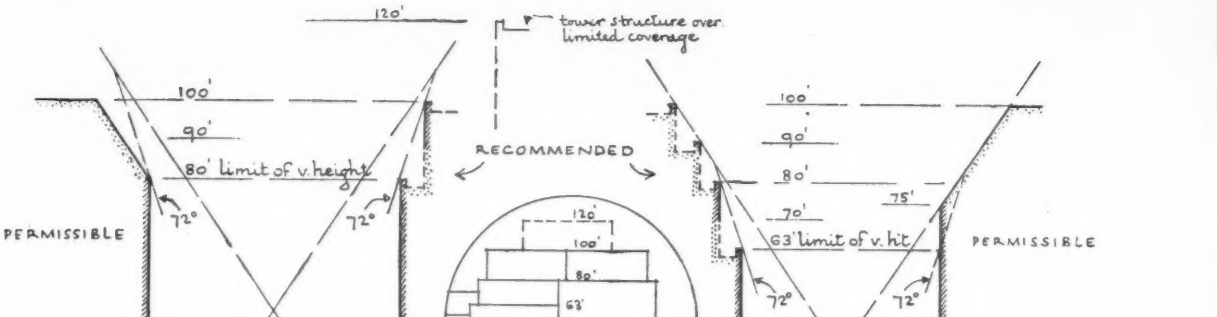


Fig. 1. St. Paul's and its surroundings replanned. The circuses at the foot of Ludgate Hill, Blackfriars Bridge, Newgate Street (opening the north-east view of St. Paul's), and in Queen Victoria Street should be noted. Lower Thames Street is shown planned at two levels

The Plan is a serious attempt at achieving an orderly future development of what is a living organic entity. It marks the abandonment of the old free growth, particularly to be remarked in the City of London, in which the individual building struggled for space, daylight and existence to the detriment of others, and especially of historical buildings. It is the substitution of planning for the growth of the jungle—the type of growth which has resulted in such monstrosities as Lower Manhattan and which was fast strangling building and existence in the City before the war. It is, on the other hand, not a purely sterile architectural conception of surgically cut boulevards with monumental façades, like Haussman's for Paris, but an attempt to make life and business tolerable and agreeable in all parts of the City. How far it may succeed in its aim and how practicable the technical proposals may be are matters for the architect reader to judge for himself, but the intentions of the consultants are clear.

In the beginning, the Report completes the survey of the problem which was made in earlier draft proposals, but says that it has not been possible to make a detailed schedule of estimated land values and actual rental values, nor to make a complete census of traffic at given points. It is, however, pointed out that if all sites had been developed to the maximum volume permissible, congestion would have been intolerable by now; therefore means of maintaining equitable distribution of space in future should be adopted.

The Plan is notable, perhaps unique, in having dated programmes and estimates of



Above: Fig. 2. Diagram illustrating recommendations on height and set-back restrictions
Right: Fig. 3. The recommendation for an historic building of small scale

labour required. The Commencement Date (for engineering operations) is suggested as June 1948, and the Building Date as April 1949. The programme is divided into a 10 years first stage and into a 30 years long term development. In fixing such target periods attention has been paid to the time taken in securing approval of the Plan, etc., the time required for engineering services, for clearance, site preparation and the making of new streets and laying of services, the amount of material and labour that may be allocated to commercial buildings and the length of the interval that must reasonably elapse during which existing structures may continue in use.

Office Accommodation. As the first step in calculating floor areas, the whole area of the City has been divided into 'street blocks', which are groups of buildings surrounded by uncovered streets. There are 318 blocks, and these have been grouped into 15 Sections. The areas of these blocks are measured in three ways. First, the Built-on Area, i.e. the land covered with structures at ground level; second, the Block Area, i.e. the area within the external building line of the block, ignoring internal access roads, and third, the Gross Area, i.e. the block area plus half the width of all surrounding streets. From this was obtained the 'Net Ratio of Floor Space' which was ascertained by dividing the total floor space in the block by the area covered by building at ground level; also, the 'Floor Space Index' was obtained by dividing the total floor space of the block by the gross area referred to above. It will be seen that the Net Ratio is of main concern to the owner and architect, while the Floor Space Index is the town planner's measuring rod.

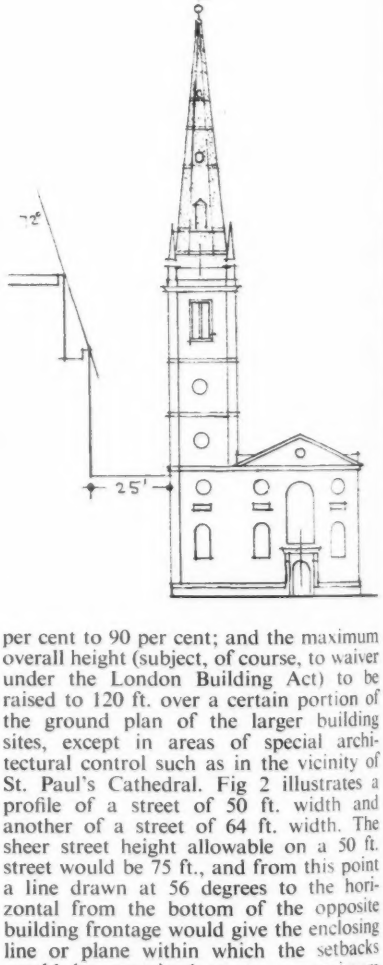
The average street block has a gross area of 2·1 acres and a built-on area of 1·2 acres. The average built-on area of all sections is 59·6 per cent of the total. The total floor space is 1,967 acres. From these figures and calculations it was discovered that the net ratio of floor space (i.e. total floor space divided by built-on area) is 5·0; the street block ratio (i.e. total floor space divided by total area of street blocks) is 3·9 and the floor space index is 3·0.

The average height of buildings throughout the City comes out at four storeys above ground and one wholly or partly below. This last figure indicates the considerable stepping down that occurs from the street frontages towards the centres of blocks.

When the figures for each of the 15 sections are considered separately it is seen that there is considerable variation, those in the centre round the Bank of England having a relatively high concentration. The Report says 'Whatever other amenities they possess, many recently erected buildings contain far too high a proportion of space that is badly lighted, as well as diminishing the daylight reaching neighbouring buildings'.

The Report points out that the various restrictions on site coverage, setbacks, agreements, rights of light, etc., give to every site a volume of usable accommodation and a more or less definable 'envelope' in which it has to be contained. Recommendations aimed at improving the shapes of individual envelopes in new buildings are made in the form of new height coverage regulations and a daylighting code. These are aimed at giving a good use of site area, ensuring penetration of daylight to interiors, both in the individual building and its neighbours and improving the external appearance of City office blocks generally.

In the revised draft clauses of height and site coverage recommended the whole City is treated as one zone, the sheer height of all frontages to be one and a half times the width of the street, and the angle of setback one of 56 degrees measured at ground level from the opposite building frontage; the ground floor coverage of shops, offices and business premises on plots over a quarter of an acre in area to be reduced from 100



per cent to 90 per cent; and the maximum overall height (subject, of course, to waiver under the London Building Act) to be raised to 120 ft. over a certain portion of the ground plan of the larger building sites, except in areas of special architectural control such as in the vicinity of St. Paul's Cathedral. Fig 2 illustrates a profile of a street of 50 ft. width and another of a street of 64 ft. width. The sheer street height allowable on a 50 ft. street would be 75 ft., and from this point a line drawn at 56 degrees to the horizontal from the bottom of the opposite building frontage would give the enclosing line or plane within which the setbacks would be contained up to a maximum height of 100 ft., which means that three floors may be built behind the main parapet

or cornice. For the sake of the street façade as a whole, it is suggested that an architect may recess his frontage above the ground or first floor, and then take it up sheer to the permitted height.

Recommendations are made for an angle of setback on the same general principle for buildings facing on to a historic monument of relatively small scale—such as an old City church (see Fig. 3). The overall height in this case should not be greater than the cornice height of the church for a lateral distance of 25 ft. from the external walls of the church on all sides. Beyond that the new building could then be taken up to the required or to the maximum permitted height. The consultants also remark that architecture is likely to be judged more and more in terms of block form as well as by street elevations. All sides of the building should be worth looking at, and the more variation there is in the composition of blocks of building the greater the importance of massing and silhouette. This will demand attention to roof structures, to sides and backs of buildings as well as to their façades.

Daylighting. After discussing the effort expended in the City on legislation, legal action and private treaty in the past to ensure that a reasonable amount of light should find its way to building elevations, the Report goes on to recommend a new daylighting code. As a result of recent research it is possible, in a proper design layout of a group of buildings, to secure to a particular room an adequate view of the sky, sufficient to give good working daylight, even with an obstruction immediately opposite the windows in question, provided that there are openings on one side or the other of the obstruction through which the sky may be seen.

Daylighting indoors is today measured as a percentage of the total light available out of doors under an unobstructed sky, and the percentage of daylight has been called the Daylight Factor. In the Plan the standard recommended for offices is a daylight factor of 1 per cent at a distance of 12 ft. from the outer face of window wall and at a height of 2 ft. 9 ins. above the floor. A series of simple tests, which are described in the Report, would be applied to the block plans of proposed buildings to ensure that the recommended standard is achieved. The code recognizes that it is not the amount of accommodation on a given area that controls the daylight reaching windows so much as the arrangement. From this it follows that the code favours the larger size of plot.

The Report contains several plans illustrating possible redevelopment schemes of a block having a gross area of 85,000 sq. ft. in accordance with the recommendations on height, coverage and daylighting. It is notable that the layouts shown are much superior to typical existing City buildings not only in respect of daylighting, but also in vehicular access and provision of quiet working conditions, as well as giving much better massing than is customary under the old conditions.

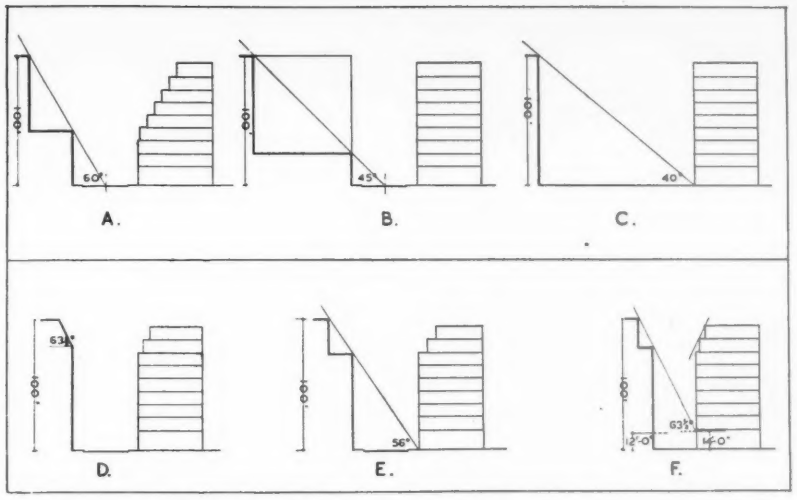


Fig. 4. Comparison of various restrictions affecting daylighting

Figure 4 shows by means of sections through buildings six sets of conditions as regards daylight access:

(A) *Proposed code.* Most rigid application, by setback within 60 degrees angle from centre of adjoining street.

(B) *Proposed code.* Optimum combination of light obtained over the top and from either side of buildings.

(C) *Proposed code.* Normal requirements for internal courts or lighting areas serving working space.

(D) *Existing regulations.* Conditions permissible in the City in Zone 1 under existing draft height and cover clauses and the London Building Act.

(E) *Existing regulations.* Normal L.C.C. requirements.

(F) *Existing regulations.* Internal courtyard permitted in the City under draft clauses. (Zone 1).

If the floor space that might be provided on a plot did not (subject to certain exceptions) exceed five times the plot area the requirements of the daylighting code could be fulfilled on all plots of 2,500 sq. ft. and more, providing they were of reasonable shape, even if each plot was developed independently.

Car Parks and Garages. The Report contains a fairly detailed study of parking spaces now existing and likely to be needed in future. An ordinary open car park uses 250 sq. ft. per vehicle; a multi-storey garage 30 sq. ft. of site area per vehicle, and this figure may be reduced by mechanical parking systems to 22·5-24 sq. ft. The whole City, with a day-time population of 480,000 would require space for 5,500 cars if one is used for every 89 persons. Public provision for 4,500 cars is recommended, and it is estimated that private and commercial garages will be needed for another 3,000 to 3,500, giving an ultimate figure of 6,800 and 8,000.

Roads. The problem of City traffic is summed up in the sentences, 'The City as a commercial centre, with a phenomenal daily ebb and flow, is a pool that fills and empties; it cannot be to any great extent a watercourse as well. Nevertheless, while an attempt can be made to exclude almost all traffic that is arterial in character, what remains is arterial in volume.' The principles followed in the Plan are classification of roads according to function; separation of traffic at different levels where ground allows; junctions designed for continuously moving traffic and rationalization of the existing street pattern by a slight increase of one-way streets, the elimination of certain right-hand turns, etc. There is no space here to describe the road proposals in detail, but their main elements are the remodelling of existing roads and cutting of certain new ones to give two main through north-south roads, namely, Farringdon Road—Blackfriars Road and Bishopsgate—Borough High Street, and three main east-west roads, namely, Holborn—Whitechapel, Fleet Street—Tower Hill, Victoria Embankment—Tower Hill. The Report discusses these routes in detail and describes the works which would be required at the principal junctions. For instance, the Farringdon Road—Blackfriars Road would be re-developed with six traffic lanes, roundabouts being created at Ludgate Circus and Blackfriars Bridge. It is proposed that the existing road bridge at Blackfriars should be demolished eventually and a new road bridge take the place of the existing railway bridge which is more conveniently placed for the discharge of traffic on the north bank. As regards the Victoria Embankment—Tower Hill route, this would pass the Blackfriars roundabout, continue along Thames Street at two levels past the new bridgehead to be created at London Bridge and a roundabout at Tower Hill. Other proposals are for roundabouts at Gray's Inn, Holborn, at the junction of Newgate Street and Cheapside (which

would open up the north-east view of St. Paul's), at the crossing of Queen Victoria Street and Cannon Street and eventually at the Bank of England.

Precincts. In planning the surroundings of St. Paul's, Ludgate Hill is to be converted into a ceremonial approach to the cathedral, traffic being diverted by way of Carter Lane on the south and Seacoal Lane on the north, these streets being widened for the purpose. The east side of the Cathedral would also be closed to north-south traffic, a new road being cut farther to the east. Certain buildings would be removed and a minimum height and cornice line in the precincts prescribed. The general uniform level resulting would be only slightly higher than Wren's own proposals for the Piazza. From the South Porch of the Cathedral a pedestrian way would be created passing over Thames Street and a similar opening is suggested from the North Porch through a shopping arcade to Newgate Street. Generally, the proposals for St. Paul's aim at keeping the precincts secluded and orderly, and to ensure good views of the building from several directions, notably Bankside.

A scheme for the replanning of the area round Guildhall as a precinct is also described and illustrated in detail. A new Aldermanbury at right angles to the long axis of Guildhall would be an impressive approach; west and north of Guildhall the City Corporation offices would be rebuilt in a single ordered scheme with Guildhall itself as the focal point. Recommendations are also made for the Temple, Tower Hill, the Halls of the City Livery Companies and the City churches. Among the latter is a proposal to remove the church of St. James, Garlickhythe, bodily to a new site about 60 ft. north of its present site.

District Heating. Among the technical proposals is one for a district heating scheme for the whole of the reconstructed areas. This is designed by Mr. S. B. Donkin, M.Inst.C.E. It recommends the generation of heat in two or three stations situated outside the City boundary and the taking of waste heat from the new Bankside Station if and when built. Mr. Donkin estimates that the average price to the consumer with coal at 55*s.* per ton would be 8*d.* per therm and that this price would be reduced when the whole scheme was in operation. This not only compares favourably with present-day costs for heating business premises, which are in most cases at least 50 per cent higher than this, but would result in an overall saving of coal amounting to 61,700 tons a year in fifteen years' time and subsequently to over 100,000 tons a year. Further, the elimination of coal carts and lorries from the streets and of chutes and chimneys would be sheer gain. 'Most important of all, the City would set an example to the rest of London in reducing the smoke nuisance at its very centre, and in doing so assist in combating the major disadvantages of grit, fog and sulphur dioxide'. From the planning point of view, the system has much to recommend it.

Schools and Students

Arch.S.A. Congress 1947—Brighton

At the opening ceremony held in the Pavilion Theatre on Thursday 10 April, Mr. Hislop, President of Arch.S.A. opened the meeting by welcoming the delegates on behalf of the Arch S.A. Council. The attendance of 80 delegates from 18 Centres was, he felt, ample evidence of students' interest in a national students organization. It was particularly gratifying to meet representatives from Centres formerly inactive or indifferent and he hoped for wholehearted participation in the discussions which followed.

The Deputy Mayor, on behalf of the Corporation, welcomed Arch.S.A. to Brighton and kindly offered the use of the Pavilion Theatre for meetings. He also cordially invited examination of the buildings of which Brighton citizens were so justly proud. He then declared Congress open.

In replying, Mr. Hislop thanked the Deputy Mayor and introduced Mr. Kenneth Black [*F*], chairman of the Brighton Chapter of the S.E. Society of Architects, who also gave a speech of welcome to Arch.S.A.

First Plenary Session. Speaker: W. E. Tatton Brown, M.A. (AA Dip.) [*A*].

In opening the session, Mr. Hislop introduced Mr. Tatton Brown who was deputizing for Mr. Percy Marshall, who was ill. Mr. Tatton Brown outlined a system of education of which he and Mr. Marshall had had considerable experience in Burma. He described interesting experiments connected with the practical demonstration of building principles. The students, all Servicemen, were building tradesmen, architectural students, surveyors, etc., and they worked together, the one benefiting by the other's specialized knowledge. He emphasized that this scheme had been purely experimental. To a certain extent it had proved successful in Burma. He suggested that Congress should discuss the scheme which he had outlined, and consider the possibilities of incorporating parts of the scheme in a revised educational system.

Speaking of the well-being of architecture generally and more specially of architectural education, he stressed the following ways in which students should help:

1. By making Arch.S.A. membership 100 per cent.

2. By gaining organizing experience in the Association.

3. By helping the joint Mars/Arch.S.A. group in its important work of surveying architectural education.

Their line of action, when qualified, should be:

1. To support the R.I.B.A. as an academic institution and to make it technically progressive and representative.

2. Support A.B.T. as the association concerned with work and its conditions for all building technicians.

3. Work for unity within the profession and with all allied experts.

Asked in the discussion which followed, how the Congress might best consider this question, 'The Education of the Architectural Student', Mr. Tatton Brown said they could do so by helping the Mars/Arch.S.A. Committee. Mr. G. Shankland, a delegate of the A.A. Centre, outlined that committee's work and suggested that Congress might help by answering the draft questionnaire already prepared. He suggested the formation of six commissions representative of various kinds of school, each to answer one questionnaire about existing conditions and to make recommendations. As a result of the answers of these commissions, the questionnaire could be made more effective before circulation to schools.

Mr. Shankland's suggestion was accepted and during Friday morning the commissions were formed. By Monday morning the work was completed and the findings read at the Second Plenary Session.

Second Plenary Session: Mr. Hislop opened the session by saying that this Congress would have been successful if the findings of the Commissions proved to be of value to the Mars/Arch.S.A. Committee. After the findings had been read, Mr. Shankland said that the data gathered would be valuable and that it would be necessary to amend the questionnaire in various ways. The findings of the Commissions will be circulated to all Arch.S.A. Centres in the near future.

Studying Industrial Design. Elsewhere in this JOURNAL is a paper by Mr. John Gloag [*Hon. A*], recently read before two audiences of students. Being addressed to students, it ought properly to have been reported in this column, but it has been thought worth printing in full and will also be of considerable interest to practising architects. It deals with that debatable question of how far architects should concern themselves with industrial design. Mr. Gloag, who has no small experience in these matters, holds that an architect's training, being in essence studies of design and the qualities of materials, is an excellent groundwork; that indeed there is no better approach. He points out, however, that training in architecture does not of itself make a man a good industrial designer but, with his architectural training behind him, he is in a good position to acquire the specialized techniques of other industries.

The Influence of Itma. A new instructor asked a fifth year architectural student what he was doing for his thesis. The student replied, 'A School of Physical Planning'. Whereupon the instructor enquired, 'What is Physical Planning?'

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialized branches of research and will willingly answer inquiries.
The Director, The Building Research Station, Garston, near Watford, Herts. Telephone: Garston 2246.
The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks. Telephone: Princes Risborough 101.
The Director, The British Standards Institution, 28 Victoria Street, Westminster, S.W.1. Telephone: Abbey 3333.
The Technical Manager, The Building Centre, 9 Conduit Street, W.1. Telephone: Mayfair 2128.

British Industries Fair. Following the reference to this Fair in the May JOURNAL, it is now possible to make reference to a few of the products that were on view at a second visit to Birmingham, when screens round the stands had been taken away and the Fair was in full swing. Most of the exhibits were for interior fitment, but as it is first necessary to erect the building, let us mention some aids to expedition in that respect.

The Thwaites Hoist: This is a portable hoist consisting of the framework, an attached petrol engine, a cage and wheels. (See Fig. 1.) It can be wheeled about by one man and leaned against a scaffold like a ladder. The electrically welded frame is in two parts, the lower having two parallel tubular guides for the cage, giving a lift of 9 ft. 6 in. The upper part is telescopic, with a total lift of 18 ft. But in the top portion of the upper part the guides are set in, and are not parallel, so when the cage reaches this portion it swings round towards the scaffold and is lowered thereto without anyone having to catch and manœuvre it. The weight of the whole apparatus is 4 cwt., lifting capacity 300 lb. The cage has a hinged front, which enables a standard builder's bucket to be put in when mortar is being raised, or the cage can be detached when lintels are to be hoisted. It is stated that 800 bricks an hour can be raised. The device was tested by M.O.W. and obtained a certificate of approval.

The Brikon Scaffold Jack. The basic purpose of this device is to keep a bricklayer's scaffold always at a convenient working height, thereby saving the time (and therefore money) spent in moving scaffolds or in working at inconveniently high or low levels. It also is of tubular construction, incorporating a movable framework, bearing the scaffold boards, and vertical guides. These guides are threaded through a special unit in which is a system of cogs operating two eccentrically loaded tipping plates, through which the vertical guides pass. The cogs are worked by a lever which raises the unit and allows the tipping plates (being eccentric) to grip the guides by friction so that the greater the load the greater is the friction grip. The amount of rise is about 1 in. for each stroke of the lever, thus allowing easy and exact adjustment of working level. A reversing movement can be put into action by means of a handle in the side of the unit. The jacking units are spaced 7 ft. 6 in. apart, if single, and 10 ft. if double. If one man is detailed to each lever the platform can be raised evenly, by the men keeping rhythm, but one man can manage it alone by raising one unit some 3 in. or 4 in. and then going to the other units and working them until the platform is horizontal. In the double system a unit is fitted to each of a pair of vertical guides, that is, one next the building and the other away from it. The width of the travelling platform is such that the two levers can conveniently be worked by one man. Time tests showed that a team of three men, working three pairs of jacks, could raise the platform at the rate of 1 ft. in 15–30 seconds, and lower it at 1 ft. per minute. The apparatus has been tested by the B.R.S. and is made by Messrs. Joseph Bradbury and Sons Ltd. of Braintree.

The Scaf-rig Unit Scaffolding. This is yet another tubular scaffold, made in units of two verticals braced with a ledger. The bottom of each vertical member is lessened in diameter to form a dowel fitting into the top of the section below. The base frame is telescopic, to allow adjustment to the variations in level of the ground. The unit frames are made in three heights to form 4 ft. 6 in., 6 ft. and 9 ft. working levels, the normal platform width being 4 ft. between verticals, but this can be widened to 5 ft. 6 in. if required. Random lengths of self-jointing worm-spigoted tubing can be obtained to form the horizontal ledgers. There are various other fittings forming diagonal members, guard rails, clamps and brackets. It is made by Messrs. Scaffolding (Great Britain) Ltd. of Plough Lane, London, S.W.17.

Having thus described three aids to quick erection of buildings, let us turn to what can be put inside them when completed. Quite a number of stoves and tiled surrounds were exhibited, some of them not at all likely to arouse enthusiasm in the architectural breast; it was in the closeable stoves and cookers that improvements and refinements were most noticeable, their lines being much cleaner than some of the fuel that is supplied to householders.

Fig. 1. The Thwaites Hoist. Self-contained and portable unit, used like a ladder

The Esse H.S. Cooker. This is an appliance made specially for Government-sponsored housing schemes. Instead of direct heating it uses a heat storage principle, by which heat is distributed to each part of the cooker by controlled radiation and conduction, and is retained by heavy insulation. Thus the fire is not in direct contact with the side of the oven, food cannot be scorched or tainted by fumes, and the reservoir of heat ensures that the ovens and hotplate are always hot. A boiler of special design is incorporated, wherein the water-way is of heavy gauge, solid drawn seamless copper tube with a cast-iron sleeve, formed into a block at one side making contact with the fire. The ovens are thermostatically controlled, and the hotplate can be covered by a hinged insulating bolster. The finish is porcelain enamel. The fire will burn anthracite, coke, or charcoal. Sizes: 34 in. high, 33 in. wide, 21 in. deep.

In addition to cooking equipment for large establishments, there is an independent water heater, made in several sizes for different ratings.

The Siesta Stove. This stove, well known to housing authorities, was on view in its various forms. The 2B and 3D are of the inset type, and the 2A is free-standing. Without a boiler, and relying on radiated and convection heating the 2B is suitable for a room of 3,000 cu. ft., the 3D for one of 4,000 cu. ft., and the 2A for 3,000 cu. ft. A feature of these stoves is the special rocking fire bars, which give effective clearance of the ashes, and can be individually replaced. In the 3D type the doors in front of the fire slide into recesses when it is wished to have an open fire; in the other two types they are hinged.

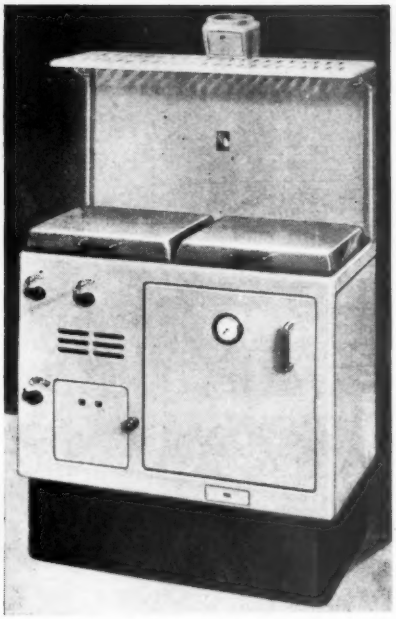


Fig. 2. The Eagle Advance Range No. 31, with pre-heated secondary air system

Eagle Advance Range No. 31. As will be seen from Fig. 2 this is a free standing cooker, finished in vitreous enamel, and capable of cooking for 6 to 10 persons. A feature of this range is that the firebrick linings of the firebox have special secondary air ducts which allow pre-heated secondary air to pass to the top of the fuel bed; this burns the gases formed in the upper part of the fuel bed, producing long flames which pass round the oven and give uniform heating, even if the fuel used is of the 'short flame' type. The controls are clearly marked and conveniently placed. The thermometer in the door of the oven will be appreciated by those who like to cook with exactitude rather than by guesswork. The hinged and insulated covers to the hot plates are an aid to cleanliness and conservation of heat. A block boiler for domestic hot water can be provided, if required. The range will deal satisfactorily with coke, coal, anthracite and manufactured fuels, with a daily consumption of 16 lb. to 20 lb., depending on the kind of fuel. Overall dimensions: 30 in. high, 31 in. wide, and 17½ in. deep. The Eagle exhibit also included combination grates, slow combustion stoves with convector outlet, ranges for large installations and a water heater using coke.

The Clip Lock. This is a new idea in locks since there is no key operating a separate locking lever, as in the usual type; instead, there is a brass bolt, operated by the handles and engaging with a receiver in the frame of the door. But there is a 'key' of thin flat section which is fitted into a slot on the underside of one of the handles, and when this is withdrawn the handles cannot be turned. This key is made in different combinations. Fixing calls for the boring of only two holes, one passing through the thickness of the door to receive the operating barrel; the other penetrating inwards from the edge of the door for insertion of the bolt, which has a ratchet on it. The 'Baby' Clip Lock is suitable for drawers; in this type the key fits into the front of the lock, as in the Yale pattern. The lock is made by the Whitliff Corporation, Ltd., of 24 Hammersmith Bridge Road, London, W.6.

The 'Quickspray' Wash Fountain. In factories and similar places where the demand for washing facilities is large and concentrated into peak periods, independent basins are slow, and even a moderate number take up a good deal of room. A wash fountain does away with these disadvantages. At the Exhibition Messrs. William E. Farrer, Ltd., displayed an aluminium fountain, fitted with an umbrella-type spray head giving a good circular discharge of water with the minimum of projection in the stem, and the makers claim that it is non-chokeable; at least the spray parts are easily dismantled and re-assembled again, if need be. The fountain can be had for foot or hand operation, and in the cast iron type the interior is lined with a hard acid-resisting enamel. The diameter of the bowl is 54 in., suitable for eight or ten persons washing at one time. The rate of discharge is three gallons a minute, and it can, of course, be arranged for cold, hot, or mixed supply. The firm also showed a 6-ft. diameter island shower unit, divided into four compartments by means of Permacrete divisions, with trays in the same material. Curtains run on circular rails, and the sprays are operated by chains. This is a compact unit, made on clean and hygienic lines.

The Aidas Circoil. Messrs. Aidas Electric Ltd. have evidently been impressed by the fact that there is a good deal of hot air about, serving no useful purpose, and although they may occasionally spell their name backward they have turned their minds forward with the intention of enabling wasted heat to be put to a useful purpose by means of the Circoil. This is a fitting to be placed on the elbow of a solid fuel space-heating stove, or on the central flue. In essence it is a bulge in the flue divided into two compartments, one part allowing the hot gases to pass up the flue in the ordinary way, in the other part they first pass and heat a U-shaped copper water container which the makers call a waste heat utilizer. This container is connected by the usual flow and return pipes to a Sadia electric water heater specially designed for the purpose. In the return pipe there is a thermostat operating a flap in the lower part of the Circoil. Normally, the position of the flap directs the hot gases past the water container, but when the water reaches about 180 degrees F., the thermostat moves the flap so that the gases pass up the free portion of the fitting. Thus the water in the container cannot boil. The vertical dividing

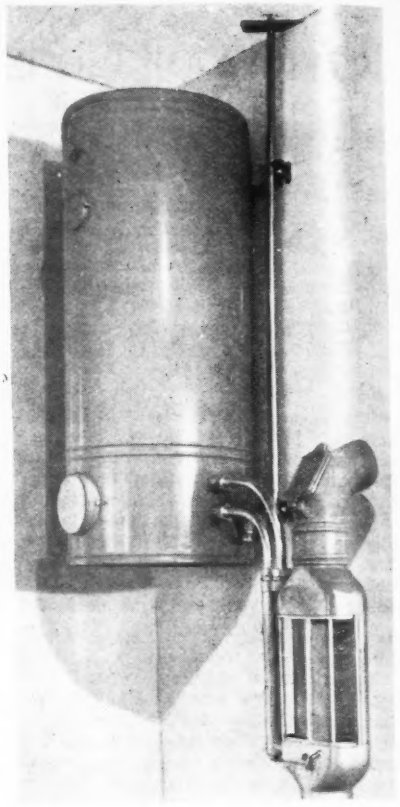


Fig. 3. The Aidas Circoil. A waste heat utilizer inserted in flue pipe of a stove

wall of the fitting is so placed that the clear areas of the two parts are approximately equal. At present, the only model made is intended for use with a solid fuel space heater of the Siesta or similar type. The Sadia water heater, type C.E.L. (coal-electric) is a storage-type heater arranged with a bank of elements near the top, loaded to 500 watts, and a larger bank, loaded to 2,500 watts, fitted near the bottom. They are controlled by a switch so that when only washing-up water is needed the upper part is switched on, but when a bath is required the lower bank of elements is brought into action. The combination of this storage unit and the Circoil waste heat utilizer enables the C.E.L. to provide hot water during the summer months, while in the winter, when the solid fuel stove is alight, the Circoil will maintain the supply. The normal type of C.E.L. can be placed under the sink, or mounted on a wall, and is intended to be connected to a solid fuel boiler (see Fig. 3).

The Shaff Tap. This tap enables a washer to be renewed without having to search for the branch stopcock (if any) or alternatively turning off practically the whole cold water supply. The interior of the tap is divided into an upper and lower portion by a kind of gallery running round the casing. A nor-

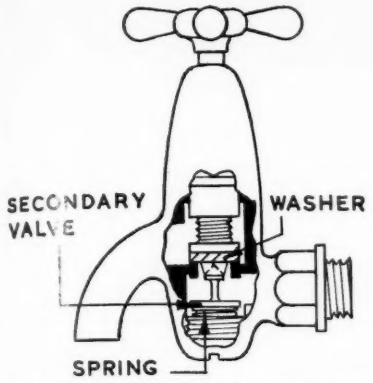


Fig. 4. The Shaff tap, showing internal construction

mal washer is attached to the spindle in the upper part, and when the tap is screwed down the washer comes into contact with the upper surface of the gallery and so stops the flow of water. To renew the washer the capstan head of the tap is screwed up until the secondary valve, being pushed up by a spring, closes against the under surface of the gallery, closing the water-way. The whole of the upper part of the tap can now be unscrewed and removed, enabling the washer to be renewed in comfort, without any water passing out of the tap. Fig. 4 illustrates the essentials of the device.

B.I.F. London. The exhibitions at Olympia and Earls Court were not of so much interest to architects as the one at Birmingham. At Earls Court, textiles, furnishing fabrics, and furniture were on view. The furniture exhibits showed a definite tendency towards 'period' styles, but it was pointed out that it would be of no use trying to export to Continental countries the kind of furniture they can produce so excellently in their own countries, with the materials at hand, therefore English makers were showing what could be done with designs based on the past.

Report from the Building Research Station. Weathering Tests on Asbestos-Cement Roofing Material. The effect of many years of exposure to the weather has been simulated during tests on asbestos-cement roofing material at the Building Research Station. Specimens from existing buildings were examined as well as new materials sent by manufacturers. Results are given in 'Building Research Technical Paper No. 29—Weathering Tests on Asbestos-Cement Roofing Materials,' published recently by H.M.S.O., Kingsway, London, W.C.2 (price 1*s.*).

The investigations were carried out by the Building Research Station, in co-operation with a group of manufacturers of asbestos-cement roofing materials, in order to obtain data on which a new British Standard Specification for these materials could be based. The British Standard Specification issued in 1936 could not include clauses defining their composition or tests for their performance in use, but a revised specification, based on the investigations described, was published in 1940 and a further revision in 1945.

The usual physical properties of strength, variation in length on wetting and drying, water absorption, etc., were covered by the investigations. Strength tests included impact strength, as well as bending and tensile strength, as this becomes a factor of some importance in roofs covered with large sheets supported at intervals on battens.

The artificial weathering tests were much more severe than the conditions to which the materials are exposed in normal weathering. In dealing with the effect of frost, specimens were tested to destruction, but in practice no instances of the disruptive lamination which occurs in such a test have been brought to the notice of the Building Research Station. Only occasional examples of flaking have been found on naturally weathered material.

The net effects of atmospheric carbonation of the asbestos-cement material are a fall in impact strength and shrinkage. In practice allowance is made for shrinkage in fixing the sheets, but the fall in impact strength emphasizes the importance of conforming to the provisions for purlin spacing, laid down in Appendix E of the revised B.S.S. No. 690. It is important because of the risk of accidents to men working on roofs covered with asbestos-cement sheeting without taking the proper precautions.

The effect of wetting and drying, as shown by the accelerated tests, which consisted of up to 480 cycles lasting 24 hours of immersion in water and drying at 50 degrees C, appears always to be favourable. Moisture movement and water absorption are reduced while the transverse strength is increased. Tests on naturally weathered materials suggest, however, that the values found in the accelerated tests may perhaps never be attained in practice.

Metal Lavatory Basins: A British Standard, 1329/1946, has recently been published for metal lavatory basins, the materials specified being porcelain enamelled sheet iron, stainless steel, monel metal, and porcelain enamelled cast iron. The specification was prepared to increase the number of standardized basins available for the housing programme, and in order to make interchange easy, the plumbing and fixing dimensions of the metal basins have been kept the same as for the ceramic basins which are the subject of B.S. 1188. The specified metal basins are 25 in. by 18 in., and 22 in. by 16 in., and are suitable for use with waste fittings, taps and brackets conforming to B.Ss. 1184, 1010, and 1255 respectively.

Solid Fuel Appliances: The Coal Utilisation Joint Council recently held a luncheon to inaugurate a large exhibit of solid fuel heating, cooking and water equipment at the Building Centre. This incorporates the newest designs, practically all of which are post-war. It is in some ways a pity that this display was not available at the time of the recent Fuel Conference, but it forms a very useful addendum to the discussions at the Conference, as there is a whole range of types from which to select. The display has special reference to domestic heating. There are convector open fires and inset stoves, which will supply warm air for background heating of other rooms; free standing stoves suitable for larger rooms, and fires with boilers which will heat one or two small radiators as well as supply hot water. Cooking appliances, which also supply hot water, include continuous-burning insulated cookers, back-to-back grates, combination grates, independent hot water boilers and small central heating boilers. The display has special reference to local authority housing schemes and includes examples of appliances for larger homes which are usable in modernizing existing heating installations. The showroom was designed by Mrs. Darcy Braddell.

The principal speaker at the luncheon was Lord Simon of Wythenshawe. He said that the principal conclusion of the Government Committee, of which he had been chairman, was that winter space and water heating load should be taken by solid fuel burnt in appliances with an efficiency of not less than 40 per cent as against the average efficiency of the old coal fire of less than 20 per cent. The new openable stoves in temporary houses, which heat the living room and give convected heat to the bedrooms, had on the whole been very satisfactory and had withstood the test of the recent cold spell very well despite not providing suitable fuels and being unfamiliar to housewives. The rate of manufacture was rapidly increasing, and there was a likelihood of sufficient appliances being available to equip all new local authority houses.

The really difficult problem was the installation of modern heat fuel appliances in the existing 12 million houses. The chief difficulty was that the new appliances are more expensive than the old open coal grate.

The designs for domestic fuel stores have now been published in booklet form by the C.U.J.C. These were referred to briefly in this column in the April JOURNAL. They give full structural details with figures of capacities, and are of a number of types suitable for various plans. Copies can be obtained from the C.U.J.C., 15 Victoria Street, S.W.1, who will also advise on selection of appliances for particular schemes. The aim of the C.U.J.C. is to supply architects and householders with an advisory public service which has been available in the past from the electricity and gas industries.

Public Works, Roads and Transport Congress and Exhibition. This exhibition will be revived at Olympia, London, from 21 to 26 July next, after a lapse of some ten years. Exhibitors will include the Department of Scientific and Industrial Research and some 130 firms showing materials, plant and vehicles. Papers will be read on various problems of local government and public works, but those on new motor roads will perhaps be of most interest to town-planning architects.

Practice Notes

Edited by Charles Woodward [*A*]

IN PARLIAMENT. Asked whether he was aware that there is a proposal to build an office block on the sites of the houses which lay between Old Palace Yard and the wall leading to the Jewel Tower; and whether, as this action would spoil the view of Westminster Abbey from that side, he will forbid the proposition, the Minister of Town and Country Planning replied: I assume that my hon. Friend refers to a site in Abingdon Street upon which it is proposed to erect offices for the use of Members and officials of the two Houses of Parliament to supplement the inadequate accommodation within the precincts of the Palace of Westminster. I am aware of the proposal and am satisfied that the erection of a suitably designed building on this site for the purpose intended would be in the public interest. (6 May 1947.)

London Population. Asked if he was aware that the populations of London and Greater London are increasing at the rate of 45,000 persons a month; that the 1938 population will be exceeded by the end of this year; and how he proposes to check this flow of people to the London area which promises to negative the intentions of the decentralization proposals of the London plans, the Minister of Town and Country Planning replied: I am aware that this was the rate of population increase in the Greater London area during the last three months of 1946, but I understand that the rate decreased somewhat during the early months of this year. The Government have, of course, no powers to prevent people returning to London if they so choose. The Government are, however, restraining the overall increase of population by examining critically any proposal for industrial expansion in Greater London and by encouraging industrial development in other parts of the country which are in need of additional employment. (20 May 1947.)

WAR DAMAGE PAYMENTS. Travelling Time in the London Area. The War Damage Commission is prepared to accept as part of the proper cost travelling expenses and travelling time in accordance with the Revised Travelling Rule dated January 1947 issued by the London Regional Joint Committee and approved by the National Joint Council, for application within the London Region. The Commission takes the view that it is not reasonable that the cost should be increased because a claimant wishes to call in a builder from a distance to do the work. Accordingly charges for travelling time and expenses are normally disallowed unless the importation of labour from a distance was justified because labour was not available locally and the work was urgent. The Commission is prepared to give advice as to whether the circumstances of the particular case would warrant a charge for abnormal travelling time and expenses. In no circumstances will the Commission pay for lodging expenses. 'London Area' means the area within which the London Working Rule Agreement applies.

WORKING RULE AGREEMENT. As from the beginning of the pay-week next following 1 June 1947, lodging allowances will be 5*s*. per night instead of 4*s*.

LAW CASE. Appeal under Town and Country Planning Acts, 1932-44. City of Plymouth (City Centre) Declaratory Order, 1946.

This appeal of the Minister of Town and Country Planning from the judgement of Mr. Justice Henn-Collins quashing the City of Plymouth (City Centre) Declaratory Order, 1946, came before the Court of Appeal on 12 May. The appeal was allowed and the following judgement is reproduced by the courtesy of the Editor of *The Estates Gazette*:

'The Master of the Rolls (Lord Greene), in his judgement, said that a local public inquiry was held into the objections of respondents to the scheme, and a report was made to the Minister. He stated, in an affidavit, that he had decided that it was requisite, for the purpose of dealing satisfactorily with the war-damaged area, to acquire compulsorily the properties in question.

The respondents gave reasons for saying that the Order was invalid as not being within the powers of the Minister to make. It was said that under Section 1 (1) of the Act the Minister's power arose only when he was satisfied that it was requisite that the area comprised in the Order should be laid out afresh and redeveloped as a whole; that he could be satisfied only if there was sufficient evidence before him, and that here there was no such evidence. Therefore the Minister could not take over The Crescent because he could not be satisfied that it was requisite.

These contentions, said his Lordship, were based on certain fundamental misconceptions as to the powers of the Minister, who, under the Act, had the effective control of the ultimate form of the redevelopment. The matters with regard to which the Minister must be satisfied before he made the Order were these: It must be shown that a particular state of facts existed with regard to war-damaged and less war-damaged properties adjacent thereto; and that he must be satisfied that it was requisite to deal with extensive war damage by means of a plan of redevelopment or a fresh layout. This latter, said his Lordship, was a matter of opinion and policy. 'Requisiteness' and 'satisfaction' were matters of policy for the Minister himself to decide. He was entitled to reach his decision without information given at a local inquiry, and he could not be confined, when using his discretion, to the evidence given at such an inquiry. He might have his own views on general policy and he could use material acquired in his executive capacity. He was not required to say by what process of reasoning, or upon what evidence he arrived at his conclusion of requisiteness.

The suggestion that in such a case as the present the Minister was bound to fail unless he had evidence as to the material before him, over and above that used at the inquiry, was, in his Lordship's opinion, inadmissible. The fact that an inquiry had been held could not be used to force the Minister to reveal matters of fact or opinion which came to his knowledge in his administrative capacity. Nor could he be compelled to disclose to the Court the material which had been given to him in his executive capacity. If it were not so the consequences might be very detrimental to the public interest.

With regard to The Crescent, his Lordship said a change of user provided for under the scheme amounted to a fresh layout.

In conclusion, his Lordship said there was no justification for saying that the decision of the Minister could be controlled by the Court by reason of the evidence, or lack of evidence, at the inquiry. How could a Minister, who was entrusted by Parliament to make an executive Order, and who was to be presumed to be acting *bona fide*, be called upon to justisfy his decision by proving that he had before him materials sufficient to support it? Such justification must be called for by Parliament, if necessary, and not by the Courts. The appeal must be allowed. Lords Justices Somervell and Wrottesley concurred. The appeal was allowed, with costs in both Courts. Leave to appeal to the House of Lords was granted, on the respondents' undertaking to present their petition to the House within six weeks.

TOWN AND COUNTRY PLANNING BILL, 1947.

This Bill passed its Third Reading in the House of Commons on 20 May. The following extracts from the speech of the Minister of Town and Country Planning may be of interest: 'The Bill also radically changes the system of land tenure in this country. There will be, after the appointed day, and there may be today in anticipation, considerable changes in the value of land, particularly where development value is involved. It is very important that prospective purchasers between now and the appointed day, should take great care to be properly advised on the value of their land, in view of these impending changes, otherwise they may find themselves paying for the development value of land of which they may not be hereafter in a position to get the benefit. I feel that it is very important that this advice should go out to prospective purchasers, because no one wishes that, in consequence of these changes, innocent parties should suffer. I explained to the House on Second Reading that it is the intention of my Department and myself, if at all possible, to ensure that the prospective developer is not required to make separate applications to a number of different bodies; that they should be in a

position to make one application and get one reply. I have gone some way in exploring that possibility, and I have every reason to believe that it will be possible to ensure that that will be done; that the prospective purchaser will be able to lodge his application, and within one period—I hope a short period—get a decision on his bye-law application, on his ribbon development application, on his planning application, and on the development charge. I realize that in the last resort, the task which this Bill is designed to secure can only be successfully carried out if the functions of town and country planning are understood and accepted by the general public. It is essential that it should be appreciated that town and country planning is not merely the preservation of the amenities of our towns and countryside, important as that is. I am afraid that in some quarters where one would have expected the functions of town and country planning to be fully understood, there is still the impression that my functions and those of my Department are exclusively concerned with amenity. Of course we have all become more or less accustomed to the exercise of planning controls. Planning control at its best has been accepted as a system of collective security on the principle, "I do not interfere with your amenities, and in return you do not interfere with mine." I think that has become generally appreciated, but what has not been appreciated is that town and country planning is something very much more than that. It is true that this Bill makes the kind of control I have indicated more effective by removing the deterrent effect on the local authorities of the payment of compensation. The Bill, however, provides much more than that kind of control. The new conception, the wider view of planning, is that planning is concerned to secure that our limited land resources are used to the best advantage of the nation as a whole, and it provides for resolving the often conflicting claims upon any particular piece of land. Planning must ensure that economic, industrial and social needs are met in the most efficient manner. It is a much bigger problem than one of mere amenities. It must recognize the need for land for all sorts of purposes, some of them apparently not very popular. We do not control planning unless we provide even for power stations, for land for the Services, for mineral works and for pylons—admittedly in the right places. There are some who object to these things wherever they happen to be. We have even got to provide for industry and housing and agriculture. In many of these forms of national activity, the individual Minister concerned must have his say. There are some who would say that the Minister of Town and Country Planning should be the sole arbitrator in respect of all uses of land in this country, and flattering as that may be to the position which I hold, I think hon. Members would recognize that it is not a very practical possibility, and that it must be left to the individual Ministers who are concerned with the particular function of the land, to make their case for the use of land for any particular purpose. The business of town and country planning must be to reconcile conflicting claims on the use of any particular piece of land. Town and country planning must also recognize that some uses of land which are necessary for the welfare of the community, will not be carried out at all unless the community undertakes the task. So, new and considerably greater powers are conferred by this Bill on the local authorities in respect of the acquisition of land and for the carrying out of this particular purpose. I hope that the local authorities will not hesitate to use the new powers that are conferred upon them to the fullest extent possible, although on the other hand I hope that no words of mine will encourage them to acquire land or to exercise their powers merely for the sake of doing so.'

Mr. Medland, the Member for Plymouth (Drake), said in the course of his speech: 'I was very glad to hear the Minister express so completely and fully the difficulties which he realized we were going to be up against in operating this Measure when he decides upon the appointed day. He said that, in the beginning, the machine will possibly creak. I have not much doubt about it myself. I am pretty sure that the machine is going to creak. I would suggest to my right hon. Friend that there is one way in which he can pour a little oil on this creaking machinery. He should take notice of the fact that there is an abundant amount of planning ability in the country which can be made available to him, if he will use it and pay for it. The trouble is that the Civil Service rates of pay for technical officers and technical people are perfectly ridiculous. I believe that is the greatest deterrent to our getting proper planning officials, either at the Ministry or in the regions. I suggest to my right hon. Friend that he should go to the Treasury once more—I know his visits have been frequent, and I congratulate him upon their results—and appeal for a proper staff, in order to enable him to make what is a very fine measure, a success. I believe that is one of the ways in which he can make it a success.'

TRAINING OF MASON APPRENTICES. In 1943 the Building Apprenticeship and Training Council was appointed under the chairmanship of Sir Malcolm Trustrum Eve, and its function is to recruit apprentices for the building industry. The scheme is open to all crafts and has had a large measure of success in house building. During 1945, however, the Council found that there was a failure to recruit boys in the mason's craft, probably due to the absence of building requiring masons, such building being severely limited by licensing restrictions. Realizing that the mason's craft would be vitally affected in the years to come, the Council recommended to the Minister of Works, and to the Industry, a variation of the earlier Apprentice Master Scheme so that whilst there remained sufficient adult craftsmen in the industry, boys could be trained in the mason's craft. The variation in the Scheme was necessitated by the fact that masonry jobs are mostly concerned with private building as distinguished from municipal work. As with the main training scheme boys are indentured under a standard National Indenture and have to attend part-time education at a technical school for two half-days or one whole day per week. The rates of pay for apprentices vary from 25 per cent in the first year to 87½ per cent in the sixth year of the standard rate for the craft.

Apart from the general interest which architects should have in the scheme, it is one that may assist them in their practice. In order that employment is provided for masons and the consequent training of apprentices an application for a building licence for such work may be favourably considered particularly where the building is predominantly of stone. Further details of the scheme can be obtained from the Secretary, R.I.B.A.

Correspondence

CONDITIONS OF PRACTICE IN BRAZIL

Sir,—Since my return to Rio in January, after spending some months in London, I have received several letters from colleagues asking for information on the subject of possibilities of establishing themselves in practice in Brazil. I have answered these letters fully, but I think it would be interesting if you will publish this letter in the JOURNAL for the benefit of any others who may be thinking of coming here.

I have been in practice in Rio since 1923, and the larger proportion of my work has been commissioned by foreign concerns, or through foreign connexions. In the last 20 years there has been a great improvement in the efficiency of the national architects, as is proved by the recent important buildings in Rio, S. Paulo and other cities. There is very strong nationalistic feeling here, and it is not at all so easy to form a practice with Brazilian clients as it was 25 years ago when foreign architects enjoyed a certain prestige.

The law governing professional practice stands as follows, and is not likely to be repealed. In order to practise as an architect, engineer, doctor or lawyer a foreign diploma is not accepted without the following formalities: the candidate must matriculate in the Portuguese language, history and geography of Brazil; he must then pass an entrance exam of the School of Arts or Polytechnic, in the case of an architect, and go through the four years' course, not only taking the exams but giving proof of attendance at classes. There are no special exams for the holders of foreign diplomas. This law has been in vigour since 1930, and previous to that date those in practice holding foreign diplomas obtained a local diploma without examinations, more or less on a similar basis to the regulations regarding chartered architects in

England at the moment of the passing of the Registration Act. I have been in practice here since 1923, and went through three forms of registration owing to alterations of the law, finally succeeding in getting a final diploma in 1930 just before the door was shut.

The above conditions of the profession apply also to the Argentine, where the law of registration was even stricter. I practised there from 1910 to 1925 with exception of my years of war service. In the early days one could practice free, without a diploma, but this became more and more difficult, and these circumstances strongly influenced my abandoning my office in Buenos Aires.

In the last 10 years, and especially during the war, a number of refugees, Germans, Poles, Austrians, Czechs, etc., arrived, several of whom were very competent architects. They usually began taking jobs as draughtsmen with Brazilian architectural firms or firms of contractors (probably being badly exploited in the beginning and having to put up with considerable hardships until they learned the language and the methods of working, which are very different from those in Europe). Several of them have been quite successful, eventually becoming partners in these firms, but all their designs must be signed by someone with a local diploma. These people were probably willing to put up with hardships, as refugees from worse conditions at home, I doubt whether an English architect, accustomed to a certain standard of living, would be satisfied with the conditions which he would find or he could afford here, on the salary he would receive, for the first period, until he learned the language and the methods of work. Even after this he would be obliged to work anonymously on any buildings he designed.

I have written at some length as I do not wish to give the impression I would discourage any British architect coming here for selfish reasons, but I can assure you that working here under the present conditions is extremely difficult even for old-timers like myself. This is now one of the most expensive cities in the world. Living costs have risen enormously, especially in the last twelve months. Materials are scarce, and labour also, as well as being extremely inefficient, especially as regards skilled work. It is impossible to make an accurate estimate, and no work can be done except on a most uncertain cost-plus basis.

I should be only too pleased to have a British collaborator, if he were willing to go through an apprenticeship. However, his usefulness would be immensely reduced by the fact that he could not represent me professionally in my absence. I should have preferred to be able to leave my practice a few years from now to a compatriot, but shall be obliged to make arrangements with a Brazilian colleague.

Anyone wishing to settle here should be prepared to make a preliminary visit as a holiday, which he will find pleasant and interesting, though expensive. It is most unlikely that anyone here will offer a contract of employment and pay the passage of a person who is unknown. The only similar cases I know of recently are those of engineers contracted by a Public Utility Co. through their London office.

I hope this information will interest my colleagues in England. Yours faithfully,

ROBERT R. PRENTICE [F]

AEDICULES

Sir,—Let us be grateful to Mr. Summerson for introducing such a delightful word into Modern English usage. If we are as astute today as we have been in the past in seizing every opportunity of enriching the English language, both in its capacity of reverence and of humour, 'Aedicules' will soon take their place beside 'Bishops', 'Duchesses', 'Civil Servants' and all the things which, by their very aloofness, dignity, solemnity and sense of surpassing importance, provide the ideal butt for all the jokes about abrupt descents from the sublime to the ridiculous. To speak of a Bishop sitting down on his hat is funny because a Bishop is usually dignified. To sing of 'ten green ædicules hanging on a wall' is funny because the idea of an ædicule is usually very important. Thus, if what is said here about ædicules is ridiculous, it is because the real idea of ædicules is sublime.

I foresee a great future for the ædicule! We will not answer wild and fantastic projects by calling them castles in the air; we will call them ædicules. The scandalous announcement: 'Grandfather is under the table again' will cease to be scandalous. It will be no reflection on his sobriety. We will all retain our drawing-room composure: 'He *will* have his little ædicule,' we'll say, with a knowing wink. Repeated excursions beneath the furniture will be merely an indication of strong ædicular susceptibility. The old songs will be revived in parody:

'But you'll look sweet
Upon the seat
Of an ædicule made for two'

will be rivalled in popularity only by:

'Where my ædicule has rested'.

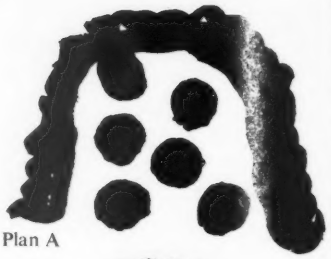
The most powerful weapon in the hands of the psychiatrist will be the question: 'Are you ædicule-conscious?' or 'Do you lead an ædiculeless life?' As Mr. Summerson says, 'Once you start on ædicules you begin to see them everywhere.' We can expect to hear of slightly hypochondriac old ladies stiffening in their chairs and whispering to their companions: 'Don't look now, my dear, but I think there's an ædicule in the room'.

Sir Alfred Clapham, who, in quoting Wordsworth's 'Intimations of immortality' was sufficiently patriotic to the architectural profession to replace the word 'Heaven' with the word 'Architecture', might have extended the parody to the following four lines:

'Not in entire forgetfulness
And not in utter nakedness
But each in our little ædicule we come
From God, who is our home!' Yours almost illegibly,

A. H. WALKER [S]

P.S.—Note how Wordsworth makes 'God' and 'Home' synonymous.



Plan A

Plan B

Sir,—Reading Mr. Wood's letter in the May JOURNAL reminded me of a Buddhist cave temple at Bhaja, between Bombay and Poona, that I saw some years ago. Here, a series of large identical Stupas, carved out of the solid rock, are to be seen dotted about the floor of an otherwise plain cell, looking rather like a collection of closely stacked beehives (plan A). They stand about 7 ft. high, the surmounting umbrellas, before they were broken off, must have reached nearly to the ceiling, and it is not difficult to imagine that these simple repeating shapes must have been easier to cut than the complicated plans of later date.

Near to this cave is the better known chaitya temple at Karle (plan B) where the main Stupa, as at Ajanta, Ellora and elsewhere, is the focal point or altar in a plan very similar to that of our own churches, while the same motif in miniature is carved as decoration on the external façade.

The Bhaja cave dates back to approximately 200 B.C. and is interesting not only as a primitive example of a sculptured architecture which, 900 years later, was to produce the wonders at Elephanta and Khailasa, but also because it is possible, without a too great stretch of the imagination, to think of it as no more than a collection of 'little houses' carved laboriously out of the side of a rock.

Yours faithfully, J. MILNES-SMITH [A]

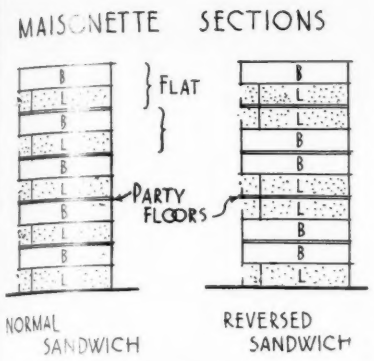
'MERULIUS LACRYMANS'

Sir,—The other day, when marking examination papers, I came across the following definition, which is much too apt for me to keep to myself:—

Question.—Define 'Merulius Lacrymans'.

Answer.—The technical name for 'dry-rot', so called because it brings tears to the eyes of the most hardened builders.

Yours faithfully, F. LESLIE HALLIDAY [F]



Illustrating Mr. H. Bagenal's letter on Maisonette Flats and Noise Risk

MAISONETTE FLATS AND NOISE RISK

Sir,—Mr. Edward Armstrong in his admirable paper on *Housing: Planning for Amenity*, says 'I think we are likely to see a considerable experimentation in the planning of super-imposed maisonettes which, in terms of lift economy, have the advantage of the balcony access method.'

This, from so good an authority, may prove a recommendation of maisonettes, and I must make it clear that the normal maisonette flat has one very serious disadvantage. Its design consists of a sandwich of bedroom floor and living-room floor, and this sandwiching brings bedrooms of one flat directly under the living-room, kitchen and W.C. of the flat above. Where this occurs the noise risk in low cost structure goes up at once. The risk is of structure-born noise, namely, footsteps, children knocking, kitchen clatter, plumbing noises, piano; and the whole structural floor may act as a sound source. Note that this sandwiching does not in fact happen in normal flat planning where rooms are planned in towers so that noise source rooms generally come over each other and bedrooms come over each other. Note also that in normal flat planning bedrooms do not come under access passages.

The reason for the vulnerability of the sandwich section is, of course, that in a bedroom a tenant attempting to go to sleep is much more sensitive to intrusive noise; and also his noise background or masking factor within the room is lower than occurs in living-rooms. We all know the irritation of trying to go to sleep when small irregular noises close at hand are continually occurring—and I must note that the classical story about the confinement in the floor above (which I cannot go into here) was in fact the true case of a maisonette flat.

Structural insulation is, therefore, required for all the party floors in this type of sandwich flats, with consequent expense. The party floors must be fire-resisting and are generally concrete or pot floors.

A noise reduction standard for flat floors is mentioned in *Housing Manual* 1944 (p. 97), namely, for impact noises an insulation gain over the bare structural floor of 5 phons. This is a minimum only and a reduction of 15 phons, as given in *House Construction* (p. 22), is, in my view, most desirable where all party floors are concerned.

There is, however, an alternative method in maisonette design which is a means of economizing, namely, that of reversing the sandwiches—sometimes termed the 'Duplex method' (fig. left). This avoids the specific evil of bedroom under adjoining living-room; it brings bedrooms under bedrooms and living-rooms under living-rooms. We now have three choices before us:—(1) If we cannot afford insulating floors at all we are better off than the straight sandwich for the reason that here bedrooms come under living-rooms *in the same flat* and not under adjoining living-rooms (control can then be exercised and risk *ipso facto* reduced). (2) If we insulate between living-rooms at the party floors, we have only half the number of party floors to insulate as compared with the straight sandwich, but we leave bedrooms exposed to adjoining bedrooms as in normal flat planning. (3) If we insulate between bedrooms we have again only half the number of party floors to insulate but leave living-rooms exposed to living-rooms above, as in normal flat planning.

In my opinion No. 3 is the more worth while, because the bedroom is then a real citadel and sleep is assured.

A useful analysis of maisonette noise problems is given in *Planning against Noise*, by D. Dex Harrison, published in the ARCHITECTS' JOURNAL (26 August and 9 September 1943). I might mention that the type of insulating floor given in the *Housing Manual* as providing the minimum 5 phon reduction against impact noises is a 'board and batten' raft floating on a glass silk or slag wool quilt. The quilt must be spread over the whole surface of the structural floor.

An unimportant complaint to be made against the 'Duplex' or reversed sandwich is that you must go downstairs to bedrooms.

Yours faithfully,

H. BAGENAL [*F*]

ACQUIRING ARCHITECTURAL FAME

Sir,—I read with a certain nostalgic interest the speeches made at the presentation of the Royal Gold Medals for the War Years, particularly Mr. Arthur J. Davis's tribute to Professor Richardson, with whom I had the pleasure and privilege of working nearly thirty years ago.

Mr. Davis, I am sure, will not mind my correcting him in the attribution of the lines which he quoted. Here is the true story of those lines:

In 1919 Richardson contributed a lively weekly feature, called *Architectural Causerie*, to the ARCHITECTS' JOURNAL, which I was then editing. One week he related how he had been discussing the design of small houses with an architect friend who was then doing a good deal of that kind of work. He summed up his impressions of that work in the following lines:—

A resourceful London architect
Quickly rose to fame,
Designing tasteful cottages,
Every one the same;
Note the graceful consoles
To each winsome door;
Stacks to every group of two,
Bays to every four.

In the next week's issue the following lines, signed 'The Victim', appeared in reply, neatly hitting off some characteristics of the Professor's own work at that time:—

Mutules in the cornice,
Acanthus round the door,
Grills across the windows,
Three feet from the floor;
Georgian in the country,
Neo-grec in town,
That's the stuff to give 'em
If you want renown!

After this long lapse of time there can be no harm in revealing that the 'Victim' was Stanley Ramsey.

Yours very truly,

G. J. HOWLING [*Hon. A*]
Editor of THE BUILDER.

ARCHITECTURAL TERMS

Sir,—Some or all of the following words appear from time to time on architects' drawings—spandril, molding, terazzo, gulley trap, cill, pulley block, lintol, gauged work, transome, facia, asphalte, bannister, wrot, shew.

There are ghost-words, 'of which', says Fowler, 'the existence is imaginary or based on a delusion'. This imaginary existence is persistent. Are there, perhaps, more ghost-words in use in the profession?

Yours faithfully,

NIALL MONTGOMERY [*A*]

Editor's Note.—Mr. Niall Montgomery's letter serves to emphasize the fact that there is no standard spelling of a great many architectural words and terms. So far as the examples he quotes are concerned the Oxford English Dictionary admits molding *as Middle English and modern American;* cill *is a variant of* sill, *which is 'still occasionally used'; the same is true of* facia *and* shew. *A* gulley *is 'an iron tram plate or rail', but not a drain inlet. Oddly enough* bannister *is a legitimate alternative to* banister, *though it is dated* 1667, *and both are 'a corruption of* baluster'. *Mr. Niall Montgomery's list could be extended (by, for instance,* stancheon), *but a major battle could be waged in the field of hyphenation; for example which of the following is correct:* plasterboard, plaster board *or* plaster-board? *Is this something for the protagonists of standardization to tackle or should we retain the charm of variety, as was possessed by Middle English?*

Book Reviews

County Palatine: A Plan for Cheshire, by *W. Dobson Chapman*. (Emergency edition.) 4to. pp. xvi+215. Chester: Cheshire County Council. 1946.

The County of Cheshire, shaped somewhat like an irregular boomerang, with a long narrow spit fronting the Mersey estuary, is bounded by the industrial areas of Merseyside in the north-west, by Manchester and district in the north-east, and by Stoke and district in the south-east.

Mr. Chapman's problem was to relate the various elements for the development of a region partly agricultural and partly industrial, in which many Local Authorities had prepared plans dealing with their immediate areas, but which required tying-up on a regional basis, and complicated by the necessity to provide for the 'overspill' from the three industrial areas immediately outside the county boundary.

In an informative foreword by Lord Justice Scott (which, for its broad views and wise advice, might with advantage be read by all those who are undertaking the responsible and exacting task of replanning Britain), emphasis is laid on the fact that, in his opinion one of the most striking features of the Report is the commonsense approach which is maintained throughout.

Mr. Chapman had the advantage of working with Mr. W. R. Davidge as a consultant and the thoroughness with which the preliminary surveys have been dealt with is particularly noticeable. What might be called an intensive and extensive sociological survey of the region deals with the development of Cheshire in all its phases. There are charming illustrations of castles, churches and domestic architecture, including such national treasures as that well-known example of a richly wrought half-timbered mansion, Moreton Old Hall. The beautiful county town of Chester takes its place in this survey.

In a short preface Mr. Davidge stresses the unique character of the area when he writes: 'It is a county full of interest, from the borders of the High Peak to the Peckforton Hills, and from the Forest of Delamere to the Welsh Marches; its ancient city and towns, even the smallest villages, have an individuality and character all their own which must be preserved; its salt deposits are something which few other counties possess. In the peninsula of the Wirral, with its waterside frontages to the Mersey and the Dee estuary, with its north-western shores to the Irish Sea, there is a piece of England which is different from all the rest'.

After dealing with the historical aspect, the Report goes on to consider such practical matters as industries, water supplies, sewerage, drainage, electricity and gas supplies, educational and health services, the province of Local Authorities and the distribution of population, together with the existing towns and villages. It is adequately illustrated by diagrams and maps.

The proposed development, including new traffic proposals, is illustrated by two large coloured maps covering the whole of the region. Of particular interest is the author's treatment of villages, both existing and proposed. Mr. Chapman has rather a fascinating category for these: he classifies them as 'small village', 'village"', and 'urban village', and emphasis is laid throughout the Report on the need to retain the character of the villages and small towns as they are today. Cheshire is particularly rich in these forms of small-scale community centres.

Amongst the many proposals which will attract particular interest, provision of regional parks takes an important place. There is scarcely any problem of development with which the Report does not deal, including that of Advisory Panels. As far as the actual proposals for the working of the Panels, it may be that they are somewhat over organized and it is doubtful, even with the assistance of Area Panel Officers, if there would be a sufficiency of architects to work the scheme, especially on a voluntary basis.

The final aim of the Plan and Report cannot better be described than by using Mr. Chapman's own words: 'What has been attempted is the indication of a considered basis upon which the rational growth of Cheshire can progress from the chaos of the unplanned development of yesterday, through the planning of today, to the orderliness of the future, the benefits of which will not be confined solely to the County or to its inhabitants.'

Possibly no greater compliment could be paid to this magnificent piece of work than to say that one of the main lessons that it, perhaps unconsciously, teaches is the need for a national plan. Further it indicates the way in which such a National Plan could be brought about. After the various Local Authorities have stated in plan form what they consider is the solution, present and future, of their particular needs, some Regional Authority, such as the County in this instance, must synchronize and harmonize them. When sufficient Regional Plans have been prepared, then, and then only, will it be possible to formulate something on a National basis.

It would appear that owing to present-day difficulties of publication, the present edition has been produced for the use of the Local Authorities in the area. It is to be hoped that it will not be long before such a valuable document can be made available to a wider public.

STANLEY C. RAMSEY [*F*]

The King is in His Counting House. A prospect for Oxford, by *Thomas Rayson*. 4to. pp. 90. Oxford. The Alden Press. 1946. 5*s*. 6*d*.

This essay is a sincere and enthusiastic plea for the adoption of a town planning scheme for Oxford. Prepared, however, during the war years, before the appointment by the City of a well-known town planning consultant, whose report is shortly expected, it has now lost something of its urgency and justification.

Consisting of a brief discussion of the present planning defects of the City, a statement of the desirable objectives to be attained and planning schemes for the City and the neighbouring areas, the essay is marked by an affectionate and detailed knowledge of the City, a sensitive understanding of traditional architectural values and a high conception of the dignity and spaciousness which ought to distinguish a University city.

But those qualities are not sufficient for town planning purposes. Town planning is no longer a general problem, to be discussed in general terms, but a series of intricate economic, social and technical problems which cannot be adequately dealt with by an individual, however talented, as the works of our distinguished town planning consultants are beginning to show. From this point of view Rayson's essay appears unconvincing, inadequate and ill-balanced. Unconvincing and inadequate, because the essential data are entirely omitted; ill-balanced, because complex economic and social problems are disposed of in a few paragraphs while proposed new buildings are discussed in detail down to the telephone boxes and the parcels stores.

It is only fair to add that the book is addressed primarily to the general reader and that it will have achieved the author's object if it interests Oxford citizens in the future of their City. But at this stage in town planning development, the gross oversimplification of town planning problems for the general public is likely to do more harm than good.

DAVID BOOTH [*A*]

A Plan for Todmorden, by *Thomas Sharp*. 4to. pp. 35. Todmorden Borough Council. 1946. 2*s*.

Suffolk Planning Survey, by *T. B. Oxenbury*. ob. pp. 33. Ipswich: W. S. Cowell Ltd. 1946. 12*s*. 6*d*.

Todmorden is a town in a hole. Geographically it lies in a narrow three-branched hollow in the moors between Halifax and Burnley. At the present time it is metaphorically in a hole, as a result of the decline of the cotton industry upon which its growth and former prosperity depended. Mr. Sharp's Plan is therefore a very different affair from the average optimistic proposal for the controlled extension of a town with a future: here there is no prospect of expansion, cotton in Todmorden is a dead-end. In any case there is no room for the enlargement of the town, the limited area of level land in the valley bottoms has already been built over, the surrounding hillsides are too steep for economic development; even before the war the population was declining, the total which stood at 25,404 in 1911 was reduced to 20,353 by 1939.

Todmorden is undoubtedly up against it and Mr. Sharp has planned for a defensive battle against heavy odds; the basis of his proposal is a clean-up of obsolete property, derelict mills and back-to-back housing,

all to be found in the town centre, followed by a systematic contraction of the residential areas from the extremities towards the centre, where social services can be provided economically for units of reasonable size. This process would leave the valley floors of the outstretched arms free for the development of any new industry that can be attracted to the district. The scheme is, of course based on the assumption that there will be Government support for the establishment of new types of industry as part of a national plan, for, as Mr. Sharp points out in his introductory paragraph, 'No purely local effort has more than the smallest chance of meeting with success. And nothing that can be suggested in the way of mere physical reorganization can in itself bring back prosperity to the town'.

The report itself is short and straight to the point, a model of its kind. It is in character with the practical folk for whom it has been written, and all the better for sticking to basic proposals rather than wasting time and paper on pretty pictures of hypothetical buildings. It is a relief to find a scheme with such a realistic approach, after studying so many planning schemes that are little more than fairy tales illustrated with perspective views of 'never-never' buildings designed in styles that will be *démodé* long before they can be built, if they are ever built at all.

A Plan for Todmorden should not be missed; it is not much to look at but it is the genuine article and if you pick it up you will not put it down until you have followed the argument to the end: and when you reach the end you will have a real sympathy for the people of Todmorden, and wish them luck in their fight for the future of their town.

Suffolk Planning Survey is a most attractive series of statistical maps illustrating diagrammatically the work and play and transport of the county, not to mention its geography and its geology. Some of the maps have as many as a dozen different sorts of colouring whereas Todmorden had to make do with nothing more than red and black; but you pay 12*s.* 6*d.* for your Suffolk Survey where Todmorden only asks a couple of shillings.

Sir Patrick Abercrombie says in his foreword: 'The production of Surveys and their reproduction in clear and attractive form is one of the healthy signs of the planning movement today. There must be not only a factual background to the Plan, a diagnosis of the condition of the place; but there should be a popular appreciation of these facts so that the public no less than the expert has an opportunity of forming an opinion as to the merits of the Plan'. The maps in this book are certainly clear and attractive, the information set forth should be easily assimilated, and if every inhabitant of Suffolk possessed a copy it would go some way towards creating the informed public that Sir Patrick desires. But how many people will in fact be prepared to pay the price for a book of 17 small-scale maps? As a half-crown Penguin Special this book might have a reasonable chance, even at 5*s.* it would probably spread far enough to be helpful, but it seems more than likely that only the already enlightened will dip into their pockets to the tune of 12*s.* 6*d.* There is no doubt that this is a well finished example of the art of draughtsman and lithographer, but it might in the long run have been better policy to follow the lead of Todmorden and turn out a less decorative volume at a more modest price.

J. BRANDON JONES [*A*]

The Land of Britain and How it is Used, by *L. Dudley Stamp.* 4to. pp. ix + 80. Longmans Green & Co. for the British Council. 1946. 2*s.* 6*d.*

This essay is important though brief. L. Dudley Stamp describes and analyses the changes which have taken place in the countryside of Britain and its economy through history; at the same time he indicates how the latent resources can be developed by careful planning, as was attempted to a certain extent during the war. The last chapter discusses problems of the future and offers certain interesting suggestions.

Report of the Conference on Industrial Design, held at the Central Hall, Westminster, 26 and 27 September, 1946. 4to. pp. 100. Published by The Council of Industrial Design and the Federation of British Industries. 1947.

In conjunction with the 'Britain Can Make It' Exhibition, the Council of Industrial Design and the Federation of British Industries held a two-day conference on Industrial Design. Leading industrialists and designers discussed various problems connected with this subject. The papers read have been published as a booklet, which includes a few illustrations.

Towards a New Architecture, by *Le Corbusier.* 4to. pp. 269. Architectural Press. 1947. Price 15*s.*

This edition is an almost exact facsimile of Mr. Etchell's English translation originally published in 1927, which has not been available for some time. Its influence upon architectural thought in this country has been clearly felt, not least among the students of the architectural schools which, Le Corbusier asserts, 'cultivate only unclean orchids'. The fact that many of the staccato pronouncements, which 20 years ago appeared startlingly revolutionary, now seem a trifle obvious, indicates the extent to which they were prophetic and stimulating; they have proved to be sound.

The book has importance as an historical document. Illustrations of aircraft types, long since obsolete and of interest only to some science museum, stress the limitations of functionalism given too narrow an interpretation. The original book, published in 1923, was conceived soon after the Great War: 'Our architects,' Le Corbusier then wrote, 'are disillusioned and unemployed, boastful and peevish. This is because there will soon be nothing more for them to do. We no longer have the money to erect historical souvenirs. At the same time we have to wash.' Once more history tends to repeat itself.

Veneered Walnut Furniture, by *R. W. Symonds.* 4to. pp. 32. Illus. 52. J. Tiranti Ltd. 1946. 6*s.*

This admirable monograph deals exclusively with furniture made by the cabinet maker from the time of Charles II until the beginning of the reign of George III, when walnut furniture ceased to be fashionable. Chairs are not included. Fifty well-selected photographs, most of which have never been reproduced before in any previous book, include examples not only of collectors' pieces of high quality but also of the type of furniture to be found generally during that period in citizen's homes.

Constructional Archwork, by *H. P. Smith.* 8vo. pp. 154. Crosby Lockwood & Son. 1946. 7*s.* 6*d.*

The aim of this book is to demonstrate that calculations for constructional archwork, often shirked by using 'rules of thumb', do not necessarily require a very advanced knowledge of mathematics. Designs have been represented graphically, and definitions of terms with notes on the various types of arches, materials and construction, strain and loads are included. The photographs of different types of brick arch—one described as 'artistic'—are clearly selected for their technical rather than their æsthetic interest.

Dilapidation Practice, by *C. A. Martin French, F.R.I.C.S., F.A.I.,* with Foreword by The Right Honourable The Lord Meston. pp. xxvii + 722. The Estates Gazette, Ltd. £2 12*s.* 6*d.*, postage 8*d.*

This book is a comprehensive reference book on the subject and contains full reports of decided cases, from which legal principles are evolved, and on which are based claims for dilapidations. This is a valuable part of the volume as it is very useful to have leading cases in such a convenient form.

Ecclesiastical and agricultural dilapidations are dealt with in detail, as also a tenant's liability under the Landlord and Tenant Act, 1927. Preparation and pricing of schedules are included as well as advice to the surveyor who is to be called as a witness in a contested case.

A tenant's liability at the end of a lease having regard to building licensing restrictions was considered in the case of Eyre *v.* Johnson (1946, 1 All E.R. 719), when it was decided that assuming circumstances beyond the tenant's control had prevented his compliance with the repairing covenants of the lease, he was nevertheless liable for damages, because the landlord had performed his part of the contract, the tenant had had the premises all the time, and had bound himself to do definite acts. This case will no doubt be referred to in another edition of this book.

The volume is a valuable addition to the library of a practitioner engaged in dilapidation practice.

CHARLES WOODWARD [*A*]

Recent English Architecture 1920-1940. Selected by the Architecture Club. 4to. pp. 74. Illus. 65. Country Life. 1947. 7*s.* 6*d.* During the period between the wars the Architecture Club held various exhibitions of photographs of representative works of modern architecture; these did a great deal to awaken general interest in what was then being built. This book attempts to reach a wider public by reproducing a selection of such photographs: public buildings and social services, business and office premises, ecclesiastical, educational and domestic. No attempt is made to weight the scales between eclecticism and functionalism or plead any special cause except for quality in expression and technique. A fair picture is given of the more important work carried out during these twenty years, and the public is left to draw its own conclusions.

Architecture as a Communal Art, by *Sir Charles Reilly.* 8vo. pp. 20. 9*d.*
Art and Everyman, by *Hervey Adams.* 8vo. pp. 32. 1*s.*
Visual Pleasures from Everyday Things, by *Nikolaus Pevsner.* 8vo. pp. 20. 9*d.*
The Future Citizen and His Surroundings, by *W. F. Morris.* 8vo. pp. 16. 6*d.* All published for the Council for Visual Education by B. T. Batsford, Ltd. 1946.
In these four booklets, the distinguished authors, and those who have written forewords, all tackle different aspects of the same problem: that of bringing about, as part of general education, an appreciation of design in all its aspects—architecture, town and country planning and the fine and industrial arts.

Further booklets and leaflets are in preparation, all of which should be welcomed alike by school teachers and the general public.

Heating and Ventilating, by *Louis J. Overton.* Sixth ed. 4to. pp. viii + 337. Manchester: The Sutherland Publishing Co., Ltd. 1946.
Questions and Answers on Ventilating and Air Conditioning, by *L. C. C. Rayner.* 8vo. vii + 104. George Newnes Ltd. 1946. 5*s.*
Some Observations on Natural Ventilation, Air Movement, and Factory Design, by *N. H. Shaw, R. W. Prunster* and *G. Blackburn.* 4to. pp. 36. Melbourne: Department of Labour and National Service, Commonwealth of Australia.
In the sixth edition of *Heating and Ventilating*, Mr. Overton has brought up to date this handy yet comprehensive work first published in 1927. It contains much information of general interest, and technical data for reference use.

Mr. Rayner's book, a companion volume to similar works on Hot Water Supply and on Heating, is written for students; it attempts to give simple answers to questions about different systems, fans, filters, ducts, sound insulation, control and refrigeration.

The third work, a booklet received from Melbourne, is an interesting study, based on investigations in four Australian factories, on the relationship between factory design and air movements induced within the building by natural ventilation.

The Slates of Wales, by *Dr. F. J. North.* 3rd ed. 4to. pp. viii + 121. Plates 27. Cardiff: National Museum of Wales. 1946. Price 5*s.*
This well-produced and illustrated volume is a new (third) edition of Dr. North's scholarly work in the National Museum's publications, which has been out of print for some years. The earlier editions have been brought up to date and much new matter incorporated. In these days of stringency it is something of an achievement to have issued it at so modest a price.

In the first interim report of the Welsh Reconstruction Advisory Council during the war years, attention was devoted to the slate industry, which over a long period has been one of the principal sources of employment in North Wales. Wide concern has been felt about the shortage of roofing slates at a time when they are so urgently required for the Government's post-war housing programme. Last year a 'working party' under the chairmanship of Sir Frederick Rees carried out a more detailed enquiry, and explored the reasons for the prevailing scarcity in supply. This arises from the fact that skilled labour is not being attracted to the quarries. It is an arduous calling and, until recently, the rates of pay were much below those of other employment calling for similar skill and experience. In the past the trade has been subject to constant uncertainties during periods of boom and depression; in the immediate post-war period keen competition from the increased use of roofing tiles was an additional trouble. Since 1939 little in the way of development work and clearance of quarry waste has proceeded, and large capital expenditure is now required for that purpose and for modernization of the quarry workings.

Dr. North's book has a new chapter on 'Slates in the Period of Reconstruction'. The record output for slate in Britain was 662,000 tons in 1898, which had fallen to 367,000 tons by 1913. After 1918 there was a gradual recovery to 305,000 tons in 1925, but by 1938 this was down to 283,500 tons. Wales provided some 77 per cent of the British output. Although there was so considerable an increase in house construction during the inter-war period, the production of slate did not benefit to anything like the extent that one would have expected. The manufacture of tiles more than doubled.

Prior to the first world war, the export of slates to foreign countries was of some importance, but the trade was never recovered and by 1939 exports were an infinitesimal percentage of the total output.

The slate industry cannot develop on mass production lines; for instance it is not usually possible to meet a heavy demand for one size without increasing also the production of several other sizes. It is of interest that in a typical pre-war year wages accounted for 75 per cent to 80 per cent of the total cost of production.

Dr. North has set out many cogent arguments for the wider use of slate. He has been at pains to ascertain some of the reasons for the lessened public demand, and in particular for the architects' disinclination to specify this best of all natural roofing materials.

The unfortunate association of endless mean streets of 19th-century dwellings with large-sized, smooth slates has been one of the arguments used against the material. A combination of red pressed brick with blue or purple slate is always an unhappy one—and so the ugliness was attributed to the slates and not to bad design and disharmony of material! When, as one sees it in the traditional buildings of Wales, slate is used with stone or colour-washed walls, the effect is invariably satisfactory. A few years ago the small sizes and thicker slates could be readily obtained, and these gave the best effects on the roof. Now it is a case of accepting whatever size one can get, if any are obtainable. There is certainly room for much more research and publicity on the technical side of the trade, which has invariably been lacking in these respects.

The book contains a wealth of useful information on the nature and origin of the slate, its distribution and uses. It may surprise some people that in North Wales slate is mined as well as being worked in open quarries. Where the strata are inclined at low angles, the working of open quarries involves removing an over-burden of waste that is thicker than the slate bed. When this occurs, as for example at Blaenau Ffestiniog, mining is resorted to. Elsewhere, galleries or deep chasms are excavated. At the Penrhyn quarries, Bethesda and at Dinorwic, the workings are of an unusual size, the last named being the largest in the world, covering 700 acres. As a major industry these quarries date from the latter part of the 18th century, but the slate rock has been used intermittently since Roman times. One of the earliest written records is in a poem of 1399, in which King Richard II's arrival at Conway is thus described in translation:—

'So rode the King,
Without making a noise
That at Conway there is much slate
On the houses he arrived with scarce a pause,
At break of day'.

About the end of the 16th century there was an appreciable export of slate from North Wales to Ireland. In the early days, quarries were quite small affairs, worked for local needs by men paying a small rent. Blaenau Ffestiniog quarries commenced about 1750, and in the following century the new town of Portmadoc was established for the shipment of the slates.

There are interesting references to their sizes and nomenclature, including Ladies (Narrow, Wide and Broad!), ranging from 16 in. by 8 in. to 14 in. by 7 in., with larger sizes as Countesses, Duchesses, and Princesses.

The volume contains a useful bibliography, and is well illustrated with maps, diagrams and photographic views.

This work of reference can be confidently recommended to architects as well as to others desiring to have first-hand knowledge of a subject of real importance.

T. ALWYN LLOYD [*F*]

Notes and Notices

NOTICES

Eleventh General Meeting, Tuesday 24 June 1947

The Eleventh General Meeting of the Session 1946–47 will be held on Tuesday 24 June 1947 at 6 p.m. for the following purposes:—

To read the minutes of the One Hundred and Ninth Annual General Meeting held on 5 May 1947; formally to admit members attending for the first time since their election.

To read the report of the Scrutineers appointed to examine the voting papers for the election of the Council for the Session 1947–48.

Light refreshments will be provided before the meeting.

Architectural Science Board. B.S.I. 1192-1944. Architectural and Building Drawing Office Practice

As it is understood that some members of the Institute are not happy with the decision reached and incorporated in this British Standard, the Council of the R.I.B.A. have approved the formation of a sub-committee, under the A.S.B. Standards Specifications Committee, to collect comments from members of the Institute, so that an agreed commentary may be sent to the B.S.I. Comments are invited, and should be sent to the Secretary, Architectural Science Board.

R.I.B.A. Distinction in Town Planning

The award of the R.I.B.A. Distinction in Town Planning, with effect from 1 June 1947, will be by conferment instead of by examination and will be limited to Fellows, Associates and Licentiates of the R.I.B.A.

The Distinction is the highest award in Town and Country Planning that the R.I.B.A. can bestow. It is primarily for members of the R.I.B.A. who have made some contribution in the field of large scale planning, especially in visual and three-dimensional planning which is so vital in the development schemes that will take place throughout the country.

Recommendations will be submitted to the Council by a standing committee to be set up for the purpose. The title of the award and the affix denoting it will remain unchanged.

Personal applications by candidates will not be entertained: the name of a candidate must be submitted by three sponsors, themselves members of the R.I.B.A., who will be required to submit the following particulars on behalf of the candidate: (*a*) details of professional qualifications and experience; (*b*) evidence of his work and achievements in the field of town and country planning, including three-dimensional planning; such evidence to consist of a list of the candidate's work together with references to professional journals in which the works have been illustrated; and such other evidence as may assist the committee in making their recommendation to the Council.

No fee will be required from the candidate. Those members who have already been awarded the Distinction will retain it and any present candidates for the examination for the Distinction under the previous procedure will be dealt with by the panel of examiners under that procedure.

Associates and the Fellowship

Associates who are eligible and desirous of transferring to the Fellowship are reminded that if they wish to take advantage of the next available election they should send the necessary nomination forms to the Secretary, R.I.B.A., as soon as possible.

The Use of Titles by Members of the Royal Institute

In view of the passing of the Architects Registration Act 1938, members whose names are on the Statutory Register are advised to make use simply of the title 'Chartered Architect' after the R.I.B.A. affix. The description 'Registered Architect' is no longer necessary.

Architects' and Surveyors' Fees in Claims under Fire Insurance Policies

The Practice Committee of the R.I.B.A., in conjunction with representatives of the Royal Institution of Chartered Surveyors, have had under consideration the question of professional fees in connection with reinstatements after fire.

No difficulty arises in connection with a fire in a building in course of erection because the building contract provides for such occurrences. It is in connection with a fire in an existing building that difficulties are likely to arise, owing to the policy being frequently indefinite in its terms. The ordinary insurer of a building in many cases does not realize that, although the services of an architect and a quantity surveyor and sometimes a clerk of works are normally essential to a rebuilding owner, unless he is specifically covered against these fees they do not form part of the insurance company's liability for payment in the case of partial or complete destruction of the building; and in many cases the insurer is not aware of this until it is too late.

In the interests of both themselves and their clients members are advised to take every possible step to ensure that fees for professional services are specifically covered in fire insurance policies.

Composition of Subscriptions for Life Membership

Fellows, Associates and Licentiates of the R.I.B.A. may become life members by compounding their respective annual subscriptions. Full details may be obtained on application to the Secretary, R.I.B.A.

ALLIED SOCIETIES

Liverpool Architectural Society Annual Dinner

On Friday 18 April at the Adelphi Hotel, Liverpool, on the occasion of the Annual Dinner of the Liverpool Architectural Society, the President of the Royal Institute, Sir Lancelot Keay, K.B.E., had the unique duty of proposing the toast of his own allied society. He referred to the example set by young architects of an earlier generation who, in designing St. George's Hall and the Cathedral, added materially to the city's dignity and left for posterity models of civic architecture. The President intimated that the 1948 Annual Conference would be held at Liverpool. He paid tribute to Mr. T. M. Alexander [*F*] who was retiring from Presidency of the Society at the end of this session after five years as its President.

Replying to Sir Lancelot Keay's toast, Mr. Alexander announced the Society's proposals to offer prizes to scholars at local schools for sketches of buildings and for essays showing an appreciation of architecture; it was also intended to increase the scope of prizes offered annually to its own members.

Viscount Leverhulme proposed the toast to the City of Liverpool, to which the Lord Mayor, Alderman W. G. Gregson, replied. These speakers referred to the opportunities offered to Liverpool architects due to the vast rebuilding programme and also to the debt Liverpool owed to architects of previous generations. The toast to the 'Guests' was proposed by Mr. Donald Bradshaw [*L*] and replied to by the Vice-Chancellor of Liverpool University, Dr. J. F. Mountford.

Among those present at the function were the Lady Mayoress, Lady Keay, Dean Dwelly (representing the Bishop of Liverpool), the Archbishop of Liverpool (Dr. Richard Downey), the Town Clerk, the Presidents of local professional societies and Mr. C. D. Spragg (Secretary of the R.I.B.A.).

Birmingham and Five Counties Architectural Association Annual Dinner

Architectural problems confronting England's great cities, Birmingham's civic buildings, the aspirations of young architects, and concern over the power station to be erected near St. Paul's were some of the many subjects dealt with by speakers at the Birmingham and Five Counties Architectural Association Annual Dinner held at the Grand Hotel, Birmingham, on 28 April 1947. A break with tradition, and one which proved a great success, took the form of a dance following the dinner. The attendance at the dinner and dance totalled 450.

The President of the Association, Mr. S. J. Stainton [*F*], proposing the civic toast, referred to the complex problem created by the rise and growth of the City of Birmingham amid the chaos of the industrial revolution. The muddle and squalor of some of its factories and houses were offset by its fine civic buildings —the Town Hall, University, Art Galleries and Libraries. Mr. Stainton then stressed the need for open spaces and parks and deprecated their spoliation by the erection of temporary houses on their fringes and in their areas. He thought he was expressing the views of most architects in saying this state of things must not persist when temporary improvisations had been overcome. Present conditions compelled the profession to be satisfied to build mere necessities, but the opportunity of building permanent homes, schools, hospitals, libraries and places of culture and entertainment was fervently awaited.

The Lord Mayor of Birmingham replied to Mr. Stainton's toast, and Dr. Raymond Priestley, Vice-Chancellor of the University, proposed the toast of 'The Royal Institute of British Architects and its Allied Societies.' In mentioning the impending vast programmes of contemplated extensions to universities up and down the country, Dr. Priestley thought that although part of university buildings should be permanent, part should be renewed every 25 years, so that they could keep pace with scientific developments. He cited science laboratories as an example.

The President of the Royal Institute, Sir Lancelot Keay, K.B.E., who had old associations with Birmingham's municipality, said great buildings marked different epochs, and without them many people would know no history. Referring to Dr. Priestley's claim about the early obsolescence of some departments of university buildings, the President said, amid laughter, that some buildings should not stand for 25 years but he could not imagine Birmingham as a city with buildings standing such a short time. Birmingham Town Hall, said the President, should remind architects and, indeed, posterity, of the standard mankind has set for buildings.

The Vice-President of the Birmingham and Five Counties Association (Mr. G. B. Cox) and the Town Clerk (Mr. F. C. Minshull) also spoke. The gathering, which was the second since the cessation of hostilities, included the Bishop of Birmingham and the Mayor of Coventry.

Devon and Cornwall Architectural Society Annual General Meeting

The Annual General Meeting of the Devon and Cornwall Architectural Society was held at the Royal Clarence Hotel, Exeter, on Saturday 17 May 1947.

The meeting, which followed a well-attended luncheon, opened with an address of welcome from the retiring President, Lt.-Col. F. J. Taylor, M.C. [*F*], to the 47 members present. Apologies and good wishes for the meeting were received from absent members followed by a confirmation of the minutes of the last Annual General Meeting and the passing of the Annual Report and Financial Statement.

The President Elect, Mr. H. V. de Courcy Hague [*F*] (County Architect to Devon County Council), was then unanimously elected as President for the ensuing year, and was duly invested with his chain of office by the retiring President, who delivered a stimulating and progressive retiring address urging the members towards a revival of interest in the Society after the enforced quiescence during the war years, and placing before the profession the plight of the small private trader for sympathetic help and advice towards achieving the rebuilding of his premises destroyed by enemy action.

The election of officers for the ensuing year then followed according to nominations: Senior Vice-President, C. Lloyd Jones [*L*]; Junior Vice-President, H. M. R. Drury [*F*]; Honorary Secretary, H. Cameron Beaumont [*A*]; Honorary Treasurer, J. Bennett [*F*]; Honorary Auditor, W. J. M. Thomasson [*A*].

The meeting was then informed of the formation of the Council following elections at the Annual General Meeting of each branch as follows: *Exeter*—Miss F. Barker [*A*], J. C. C. Bruce [*F*], J. Challice [*F*], J. A. Powell [*F*], P. A. Tilden [*F*], E. Kemeys-Jenkin [*F*], E. Narracott [*A*], R. J. Lane [*A*], A. Palfrey [*L*], S. J. Stone [*A*], W. L. Lee [*A*]. *Plymouth*—E. Ashworth [*L*], E. G. Catchpole [*A*], E. U. Channon [*F*], A. C. H. Harris [*A*], H. J. Hammick [*L*], I. S. Hodgess [*A*], S. Pool [*A*], H. J. Sloggett [*L*], G. J. S. Smith [*A*], L. F. Vanstone [*L*], R. F. Wheatly [*F*] and J. H. Serpell.

A suggestion to levy a direct subscription on all members, irrespective of membership of the Royal Institute of British Architects, in order to build up the finances of the Society to a level to allow of greater professional and social activities within the two branches was then discussed and was referred back to the Council for further consideration and the preparation of a full report on implications.

The annual outing and annual dinner and ball were then discussed, and it was decided to hold the former by way of a visit to Dunster Castle, near Minehead.

The meeting closed with suitable votes of thanks and the members then partook of afternoon tea at the kind invitation of the Past President.

Essex Cambs. and Herts. Society of Architects —West Essex Chapter

A well-attended supper and discussion evening was held on 12 May at Jerrard's Restaurant, Ilford. Further meetings of the Chapter are being arranged at the same place for the autumn and winter and it is hoped members will find this a convenient meeting place. During the summer there will be a Saturday afternoon visit, details of which will be announced later. A visit to the Building Exhibition at Olympia (November-December) is being arranged and it is hoped to establish a theatre-dinner function in the autumn. Mr. D. A. Thomerson [*A*], Finsbury Chambers, 76 Finsbury Pavement, E.C.2, is the Hon. Secretary of the Chapter.

Maidstone Group of South-Eastern Society of Architects

The recently-formed Maidstone Group of the Tunbridge Wells Chapter of the South-Eastern Society of Architects has now held two monthly meetings. These have been very successful. The first was held on 9 April, when Mr. J. M. Holt lectured on 'Glass—its uses in building'—it was illustrated by lantern slides. The second, also illustrated by lantern slides, was given by Mr. A. B. Read, and the main subject was the trend of modern design.

COMPETITIONS

Bessingby Housing Estate, Bridlington

Bessingby Town Council invite architects to submit designs for the layout of a Housing Estate at Bessingby and for 250 houses of eight types to be erected on part of the estate.

Assessor: Mr. C. W. C. Needham, F.S.A., M.T.P.I. [*F*].

Premiums: 100 gns., 50 gns., 25 gns.

Last day for submitting designs: 14 July 1947.

Conditions may be obtained on application to the Borough Engineer, Town Hall, Bridlington.

Deposit 2 gns.

COMPETITION RESULT

Extension of the Fife County Council Buildings, Cupar

1. Mr. John Needham, Dip. Arch. (Leeds) [*A*].
2. Mr. Ian Brown Kinnear, Dip. Arch. (Edin.) [*A*].
3. Mr. J. W. Manson [*L*].

GENERAL NOTES

Royal Incorporation of Architects in Scotland Prizes and Studentships Awards

The awards in the annual prizes and studentships of the Royal Incorporation of Architects in Scotland have now been announced. *Rowand Anderson Studentship:* (1) Silver Medal and £100, James Paterson (Edinburgh College of Art); (2) £20, Hugh H. Martin (Dundee School of Architecture); (3) £10, Ian W. Paterson (Aberdeen School of Architecture); Honourable Mention, L. Balfour Paul (Edinburgh College of Art) and David H. Coutts (Aberdeen School of Architecture). *Rutland Prize:* 1st Prize (£50), Alex. Scott (Dundee School of Architecture); 2nd Prize (£20), D. P. Whitehorn (Aberdeen School of Architecture); 3rd Prize (£10), George A. Falconer (Aberdeen School of Architecture); Honourable Mention, D. E. Walker and H. A. Wheeler (both Glasgow School of Architecture), A. J. McCowan, J. F. Rew, N. C. Cordiner and L. G. Stephen (all Aberdeen School of Architecture). *Incorporation Prize:* 1st equal (£10 each), A. C. Mackintosh and J. D. Shearer (Edinburgh College of Art); 3rd (£5), P. L. A. Williams (Glasgow School of Architecture); Honourable Mention, F. St. G. Higginson (Edinburgh College of Art). *Lorimer Memorial Prize* (£10): P. L. A. Williams (Glasgow School of Architecture). *Quarterly Essay Prize* (£15): J. T. Burton (Dundee School of Architecture). *Maintenance Scholarship* (£50 for two years): N. H. Cullen (Dundee School of Architecture).

Architectural Association Scholarships

The Council of the Architectural Association announce the award of the following scholarships in architecture at the Architectural Association School of Architecture: Minter Open Entrance Scholarship (value £90) *Mr. D. C. Clayton* (*South Kensington, London*), Sir Walter Lawrence Open Entrance Scholarship (value £90) *Mr. C. P. Sainsbury* (*West Byfleet, Surrey*), Metal Window Scholarship (presented by The British Metal Window Manufacturers' Association Limited) (value £75 p.a.) *Mr. J. M. Keable* (*Sittingbourne, Kent*), Natural Asphalte Council Scholarship (presented by the Natural Asphalte Mine-Owners' and Manufacturers' Council) (value £50 p.a.) *Mr. T. G. Bidwell* (*St. John's Wood, London*), Northern Aluminium Scholarship (presented by The Northern Aluminium Company) (value £50 p.a.) *Mr. J. M. Broughton* (*Ormskirk, Lancs*), Patent Glazing Scholarship (presented by the Patent Glazing Conference (value £50 p.a.) *Miss Patricia Bowden* (*Watford, Herts*).

Franco-British Union of Architects

An invitation has been received from the French Section of the Franco-British Union of Architects to hold the next Annual General Meeting and Congress at Compiegne, near Paris, in the early part of September 1947.

The invitation has been cordially accepted by the British Section and it will assist in making the necessary arrangements if any members of the Union who intend to take part in the meeting will write as soon as possible to Lt.-Col. H. P. Cart de Lafontaine (*F*) Hon. Secretary-General, Franco-British Union of Architects, 3, Lisson Grove, London, N.W.1.

Details of programme, hotel accommodation, estimated cost of journey and stay in France will be sent to all members interested as soon as these are available.

Summer Symposium on Sound Absorption and Reverberation.

The newly-formed Acoustics Group of the Physical Society is holding a summer symposium in the R.I.B.A. on 26 June this year on sound absorption and reverberation. The meetings are to be opened by Professor P. V. Bruel, of Copenhagen, who is speaking on Panel Absorbents, and Mr. J. Moir, who will discuss some other new aspects of reverberation. At both papers a number of formal contributions will be made and there will be general discussions. The meeting has a direct interest for architects, who are invited to be present. The meetings will open at 10 a.m. and continue in the afternoon and after tea. Arrangements are being made for a buffet lunch and for tea, and all who intend to be present should notify the Secretaries so that the necessary arrangements can be made.

Members are reminded that they are eligible for membership of the Group at a nominal fee: there is no requirement that they have a direct interest in Physics. Details may be obtained from the Joint Secretaries of the Acoustics Group, W. A. Allen [*A*] and A. T. Pickles, O.B.E., at the Physical Society, 1 Lowther Gardens, Prince Consort Road, S.W.7.

School of Planning and Research for Regional Development: One Year Diploma Course in Town and Country Planning

This Course will be a full-time day course lasting three terms, each containing 12 weeks. The course will open on 22 September 1947, and the fees will be £100. The course will only be open to approved students holding a university degree or professional qualification. A Diploma will be given to students who pass the examinations and whose preliminary qualifications entitle them to sit for the Final Examination of the Town Planning Institute. This Diploma will exempt such students from that examination. Intending students should ascertain from the Town Planning Institute (18 Ashley Place, London, S.W.1) whether their preliminary qualifications meet the T.P.I. requirements. Other students who satisfactorily complete the course will receive a certificate to this effect. Other particulars from the Secretary, 34 Gordon Square, London, W.C.1. (Euston 2158-9.)

T.P.I. Summer School
The Town and Country Planning Summer School is to be held under the auspices of the Town Planning Institute at Reading University from 16-23 July. The opening address will be given by Mr. Lewis Silkin, Minister of Town and Country Planning. Further details are available from the Secretary, Town and Country Planning Summer School, 18, Ashley Place, London, S.W.1.

The Institute of Clerks of Works of Great Britain Incorporated Examination 1947
The following are the results of the Examination for Clerks of Works held at the R.I.B.A. on 25, 26, 27 and 29 March 1947. The list of successful candidates is given in order of merit :—

Part I (Preliminary)—Clark, J. P. (Southampton). Equal: Littlejohns, F. (Taunton) and Randle, F. (Leicester), Howard, D. A. (Bradford), Orpin, N. E. (London, S.W.2), Slatem, L. (Harrow, Middx.), Kirk, H. T. (Dalkeith, Midlothian), Equal: Rackham, S. D. (Ipswich) and Williams, C. S. (Taunton); Equal: Charlesworth, R. E. (Upper Norwood, S.E.19) and Farrar, J. (Shaw, Lancs) and Neck, L. T. C. (Chadwell Heath, Essex); Equal: Jennings, A. (Higham's Park, London, E.4) and McQueenie, F. J. (N. Harrow, Middx.); Bedford, W. (Acomb, York); Equal: Hewitt, W. A. (Leicester) and Price, H. (Wolstanton, Stoke-on-Trent); Lentell, A. E. (London, S.W.2); Equal: Hall, J. A. (Hastings) and James, C. T. (Penzance) and Wilson, J. W. (Scunthorpe, Lincs.).

Part II (Final)—Passed: Newman, W. G. (Chatham, Kent), Macey, E. E. (Ipswich), Boater, R. S. (Woking), Easterling, L. W. (Eastbourne), Davies, C. (St. Ives, Cornwall), Bone, J. F. (Malvern, Worcs.), Carding, M. (Wellington, Salop), Birchman, J. E. (Newton Stewart, Scotland), Shapland, R. J. (Taunton), Nixon, W. (Newcastle, Staffs), Clarke, T. E. (Derby), Hogarth, H. (Dringhouses, York).

The following passed in three groups in 1946, and this year completed the examination: McKendrick, W. McL. (Edinburgh, 9), Pearson, J. (Hetton-le-Hole, Co. Durham), Wigley, W. E. (Preston, Lancs).

The following passed in two groups in 1946, and this year completed the examination: Bates, J. L. (Orrell Post, Wigan), Cook, J. (Southsea, Hants), Cunningham, T. (Basingstoke, Hants), Lomax, J. (Manchester).

Passed in three groups out of four: Earnshaw, F. E. (Salford, Lancs), Morritt, D. (Cardiff), Mason, R. T. (East Grinstead), Russell, G. W. (Battersea, S.W.11), Stabler, D. (Thornaby-on-Tees, Co. Durham).

Passed in two groups out of four: Beningfield, T. J. (Bow, London, E.3).

Obituaries

Edwin James Hamilton (*Retired Member of the Society of Architects*), of Highbury House, Wellington, Brighton, and who died in his 95th year on 29 December 1946 was president of the Society of Architects in 1894-5-6, and again in 1908.

A life-time devotee of Congregationalism, numerous churches in various parts of Sussex had their origin on his drawing-board. His office was in Brighton.

W. Herbert Alton [*L*] carried on a busy practice at Brixton, and the versatility of his architectural work was prominent despite its geographical remoteness from his London office. A few examples are St. George's Home, Cape Town, Marine Mansions, bandstand and kiosks, cemetery chapel, vicarages, banks and shop premises at Bexhill-on-Sea, schools in Kent and Sussex, a country house at Baverhill, bungalows and detached houses in many parts of London, Surrey, Bedfordshire, Kent, Sussex and Penzance, housing schemes for H.M. Office of Works, an institute and club at Plumstead, Roman Catholic churches in Eire and Ulster, a factory at Tottenham, various cinemas (in collaboration with other members) and the military hospital at Malta for H.M. War Office. He also executed work in connection with the War Damage Commission.

Mr. Alton was 78, and died on 16 November 1946.

Arthur E. McKewan [*A*] died on 6 February 1947. He was a past member of the Allied Societies Conference and past president of the original Birmingham Architectural Association, now the Birmingham and Five Counties Architectural Association. Mr. C. Stanbury Madeley [*A*] of Birmingham has sent the following appreciation : 'I first met Arthur McKewan when I entered his office in January 1904 on a month's trial before becoming articled for four years. I remained about two years after my articles expired, and can speak with affection of his many kindnesses to me during the next year or two. I helped him when required, carried out my own work on occasion, having the use of his office rent free, and from time to time we embarked on competition work together, obtaining second premiated place in one case. Since that time our ways parted, but I was always sure of a sincere welcome whenever I called to see him. I was by no means a brilliant pupil, but that fact never impaired our friendship.

'Apart from golf for exercise, and photography as a relaxation, his interests were always in his work, and his great delight was to partake of the trips abroad with fellow architects of the Birmingham and Five Counties Architectural Association, where he put to full use his excellent and considerable skill in water colours. These water colour sketches were the delight of all local architects when they were published as colour plates in the issues of the Birmingham Architectural Association Green Book. The walls of his office were covered with these paintings, and it was a great blow to him when they were all destroyed by enemy action, including all his office records. Fortunately the coloured prints enabled him to re-create the pictures, a task which occupied his spare time for the last six years of his life.

'He was of a retiring disposition and a man of few words, and rarely given to praise, as I well remember; but praise when given was very sincere, and I found his judgement of the work of his contemporaries both critical and just.

'His professional work was always extremely sound, like everything he accomplished: his draughtsmanship was careful and neat. Whenever I have seen drawings of later work prepared by his own hand, I have been impressed by the care and excellence of the lettering, which to my mind has always stood out in his work.

'For the following brief notes on his professional career I am in part indebted to his son, Mr. Malcolm McKewan, who was for many years in partnership with him and now carries on the practice. The list of his work is perforce incomplete as all office records were lost, and I have only my memory on which to rely for the early work.

'He was articled to the firm of Crouch and Butler, finally setting up in practice for himself in 1898.

'When I entered his office he was completing libraries at Maidenhead (won in competition with G. H. Vernon Cale) and Keighley, Yorks (in conjunction with James A. Swan), and was constructing a large house at West Hills, Northfield, Birmingham, for W. A. Cadbury. Several factories and smaller houses were completed about this time.

'After the first world war he carried out a housing scheme at Stirchley for the Birmingham Corporation (won in competition), schools for the Birmingham Education Committee, and the Woodcock Street Baths for the Birmingham Corporation, together with Solihull Methodist Church and Acocks Green Methodist Institute, and a considerable number of private houses.

'During the late war the firm did much work in connection with air raid shelters, war factories, British Restaurants and canteens, and at the time of his death they were carrying out, in association with Mr. C. E. M. Fillmore [*F*], housing work for a number of local authorities in the Midlands.

'He served the Birmingham and Five Counties Architectural Association (which he joined in 1889) faithfully for many years, first as Hon. Secretary from 1898 to 1902; Vice-President from 1917-1919 and again from 1929-1934, occupying the Presidential chair from 1924-1926, and he rendered valuable service on many committees, his help and advice being given unstintingly.

He qualified as an Associate of the R.I.B.A. in 1896.

'He leaves a widow, son and daughter.'

Mr. McKewan was 76.

G. Eric Mitchell [*A*]: Borough Architect and Surveyor to the County Borough of Merthyr Tydfil, Fellow of the Bristol Society of Architects, a member of the Institution of Municipal and County Engineers, and of the Royal Sanitary Institute, and the author of several architectural literary works, was not a well-known architect in the generally accepted meaning of that term, but the tragic circumstances of his recent death in hospital at the early age of 40 as a result of gunshot injuries strike a sympathetic note perhaps rather more from the personal than the public side of his career and life. Mr. Mitchell died in hospital on 10 March 1947 from injuries received at the hands of thugs in an affray in London, some ten days earlier, and in which he was involved as an innocent bystander when he intervened to prevent the molestation and contemplated robbery of an old lady.

It is debatable which is the more tragic, to be killed on a crest of one's ambitions or to predecease a wife and two young children, as did Mr. Mitchell, by reason only of doing one's duty as a law-abiding citizen and being the loser in a quarrel in which one had no making. It is unfortunate that there appears to be no official fund extant which will make some financial and immediate compensation in a tragedy of this kind. This is a cogent example in which a society such as the Architects' Benevolent Society can take an interest and actively assist if necessary so far as its funds will permit.

We feel sure all readers will sympathize with Mrs. Mitchell and her two children in their bereavement.

Mr. Mitchell commenced his training in 1922 at Stockton-on-Tees, and in 1927 became Senior Architectural and Surveying Assistant to the Borough of Edmonton, which post he held until 1930, when he was appointed Chief Architectural and Surveying Assistant to the Borough of Southgate. In 1935 he went to Cromer

(Norfolk) as Surveyor and Architect to the Urban District Council there, where he stayed until 1941, when he became City Surveyor and Architect to the Wells Corporation (Somerset) and Consulting Architect to the Shepton Mallet U.D.C. He then went to Merthyr Tydfil as Borough Architect and Surveyor.

At Merthyr Tydfil, Mr. Mitchell was principally engaged upon the development of large housing estates, and at the date of his death had under construction 700 dwellings of various types, as well as controlling the labour force, maintenance and management of a development area which is being prepared to receive important new industries in process of being moved to South Wales.

Mr. Mitchell was the author of several literary works, his first book being *Model Building Bye-laws* (Batsford). Others were *Modern Sanitary Engineering* (Newnes Ltd.), *Sanitation, Drainage and Water Supply* (Newnes Ltd.); also in course of preparation was *A Concise Dictionary of Building Trade Terms* (illustrated) (Batsford).

Thomas Riley Clemence [*F* 1925-46], aged 83, died on 4 April 1947. Mr. C. Fifield [*F*] has sent the following appreciation: 'He studied in London at the Royal Architectural School in 1883 and commenced his career in a London office, later going to Guildford as chief assistant to the late W. G. Lower. He started practice on his own behalf in 1900 in Guildford. He had various partners at different times and in later years the firm was known as Clemence & Co. He built many large houses in Guildford and hotels and public houses for Friary Holroyd and Healy's Breweries Ltd., amongst these "The Anchor", Godalming, "The Jolly Farmer", Guildford, "The Three Tuns", Dorking, "The Three Pigeons", Guildford, "The Wheatsheaf", Horsel, and "The Fighting Cocks", Bagshot. He designed on behalf of Messrs. Young & Co. of Wandsworth "The King's Head", Merton, and "The Bridge Hotel", Greenford, as well as reconstruction work at "The Ram", Wandsworth, and the "Green Man", Putney Heath.

'He entered for many competitions in his day and a memorial gateway, with brick and tile arch, wing walls and ironwork, to the late C. F. Watts, R.A., was erected to his design in North St., Guildford. He designed many shops in Guildford, and industrial premises in South London. Northmead Girls School was one of his later works. He had sterling qualities as an architect. Nothing but the best would suffice and he always claimed "we should build for posterity". More than once work was rebuilt at his own expense when it did not at first meet with his satisfaction. He always took a great interest in the work of students and was ever ready to give kindly help and advice.

'The Guildford Chapter of the South Eastern Society of Architects held his interest from its inception, and he was at one time Chairman of the Chapter. At his invitation, Committee meetings were held at his house. A truly notable, generous and worthy figure has passed from the architectural profession.'

Henry P. B. Downing [*F*], a Vice-President of the Royal Institute from 1926–28 and who practised in London and at Merton, Surrey, died on 26 March 1947 at the age of 82. In his early days he was a student at the Royal Academy, and was articled to Mr. A. H. Tiltman, commencing personal practice in 1888. His principal architectural works were churches at Clapham, Mitcham, Walthamstow, Beddington (Surrey) and Tooting, and work in connection with the preservation of Winchelsea Church, Sussex. He designed schools in Wimbledon, Bromley, Bexhill and vicarages and other domestic architecture in Surrey and Sussex.

Mr. Downing was Diocesan Architect for Chichester, a consulting architect to the Incorporated Church Building Society and the London Diocesan Fund, a Fellow of the Society of Antiquaries and of the Royal Institution of Chartered Surveyors. He was the author of 'Architectural Relics in Cornwall' 'Monograph on the Church of St. Bartholomew, Lostwithiel', 'Westminster Abbey and its Monuments', 'Monumental Brasses' and of several papers on archaeology in relation to ecclesiastical architecture.

M. J. H. Somake [*Retd. F*], who retired in 1938, the father of Mr. Ellis E. Somake [*F*], died on 6 April 1947 at the age of 72. From 1900 to 1922 he practised in Karachi, and there designed the North Western Hotel, shipping offices for Messrs. Mackinnon Mackenzie and Co., offices for the P. & O. Company, G.P. Association Hall and Club, St. Joseph's Convent High School, and various chapels, shops and flats.

Thomas W. T. Richardson [*F*], of Stockton-on-Tees, died on 27 March 1947 at the age of 83. He completed his training in 1887 and practised in Stockton until 1946, and was a founder member of the Tees-side branch of the Northern Architectural Association.

His principal works were Council schools in Stockton, Wolsingham Grammar School, Co. Durham, Ragworth Open Air School, Norton, Stockton, the Billingham Methodist Hall, Co. Durham, and various Methodist churches and schools in the North of England.

John T. Saunders [*F*], President of the Berks., Bucks. and Oxon. Architectural Association from 1940-46, has died at the age of 70. He died in London on 7 April, 1947. Trained in London, and commencing personal practice in 1916 his principal architectural works were Princess Louise Hospital, North Kensington, New Place, Framfield, and alterations to country houses in Oxfordshire, Perthshire and Bedfordshire. In 1935 he was Vice-President of the Institution of Structural Engineers.

Charles F. Newcombe [*Retd. A*] was articled to his father, the late W. L. Newcombe [*F*] and entered into partnership with his father in 1902. He practised with his father and brother, Mr. P. Clive Newcombe [*F*] from 1908 to 1929. On the death of his father in 1929 Mr. C. F. Newcombe practised with Mr. P. C. Newcombe until retiring in 1938. In the partnership he was responsible for many banks, hospitals, houses and institutions in the North of England. Mr. P. Clive Newcombe [*F*] carries on the practice under the style of Newcombe & Newcombe at 23 Eldon Square, Newcastle-on-Tyne.

Mr. C. F. Newcombe died on 11 April 1947, aged 73.

Cecil G. Butler [*F*] practised in Shrewsbury up to the time of his death on 30 April 1947 at the age of 49. From 1923 into the early 1930's he designed many houses in the Hampstead Garden Suburb. He also designed blocks of flats in Wandsworth and other parts of London.

Joseph Hill [*F*]—**Correction.**—It is regretted Mr. Joseph Hill's age at death was wrongly stated in the April JOURNAL to be 51. He was 59 when he died on 13 January 1947. Moreover, his home town was Newcastle-upon-Tyne, and not Gloucestershire.

Membership Lists

ELECTION: 6 MAY 1947

The following candidates for membership were elected on 6 May 1947.

AS FELLOWS (8)

Adie: Francis Hubert [*A* 1936].
Coulter: Herbert George, M.B.E., M.C. [*A* 1930].
Dowling: Edward Thorne, A.A. Dip. [*A* 1934].
Harris: Arthur Noel [*A* 1936], Northampton.
Light: Alfred Charles, B.A. (Lond.) [*A* 1935], Kingston-upon-Hull.
Samuel: The Hon. Godfrey Herbert [*A* 1934].
Scammell: Rodney Quinton (Lieut.-Col. R.E.) [*A* 1929], Nairobi, Kenya Colony.
Seymer: Vivian Home (Lieut.-Col.), **D.S.O., M.C., F.S.A.,** A.A. Dip. [*A* 1936].

AS ASSOCIATES (81)

Alp: William.
Annabell: Milton Spurdle, Auckland, N.Z.
Barlow: James Edward, Stockport.
Bell: Thomas Frederick, Durham.
Boorman: Reginald Alfred.
Bryant: Rowland Robert.
Bunce: Roland John.
Chandler: Ernest William, Folkestone.
Chivers: Thomas Arthur, Llanelly.
Cleverly: Charles Peter.
Corsar: Peter McGeoch, Southsea.
Cox Martin: Peter Hugh, M.B.E.
Davies: David Sydney, Chester.
Davison: John George.
de Lisle: Aubrey Frank, Hamilton, N.Z.
Deans: Ralph Willis, G.M.
Denyer: John Henry.
Edmonds: Alexander Henry.
Elliott: Arthur Charles.
Evans: William Gwyn Stephen.
Everest: Arthur Leslie Rutland.
Farey: Michael Arthur James, B.A.Arch. Cantab.
Farquhar: James Alexander.
Felce: David Gilbert.
Fordham: George Robert.
Fraser: Rupert Baird Andrew.
Gaymer: Anthony Durnford.
Gerson: Wolfgang, Westmount, P.Q., Canada.
Goldthorp: Joseph, Whitehaven
Gostling: Gerald Arthur.
Green: Harry Albert.
Griffiths: Ceri, Dip. Arch. (Dist.) Cardiff, Barry Dock, Glam.
Guise: John Bernard, Solihull.
Hamilton: Humphrey Allen.
Hammond: Peter Douglas.
Hart: Cyril Arthur.
Heathcote: Cyril.
Higgins: James Henry.
Hiner: Walter Edward.
Hunt: Arthur.
Johnson: Frank William, Burton-on-Trent.
Julius: George Leslie.
Kennedy: Barbara (Miss).
Love: Henry, Belfast.
McCormack: John Francis, Dublin.
McLennan: David John, Swansea.
Marshall: Arthur James.
Milne: William Fraser, Dundee.
Mitchell: Leslie Vivian.
Morgan: Emslie Alexander, Aberdeen.
Mould: Frank, Stoke-on-Trent.
Moxham: Brian James.
Murray: James, Edinburgh.
Neave: Raymond Frank.
Neish: Robert, Inverness.
Newton: Eric Albert, M.B.E., Boston, Lincs.
Norton: George Percy.
Panter: Ruth Francis (Miss).
Purcell: Donovan Cole, Norwich.

Ramsay: Walter Neil Wilson, Coatbridge, Scotland.
Ritchie: David Archibald Hugh.
Royce: John Roger.
Sartain: George Leslie.
Smith: Albert Edwin.
Smuts: David Adrian Ferris, Johannesburg, S. Africa.
Stewart: William Stanley, Newcastle-upon-Tyne.
Tansley: Harry Mayne.
Terry: John, Cambridge.
Tetley: Patrick Ivor Delaval.
Thomas: Richard Paget, Salisbury, Southern Rhodesia.
Thornton: Hilda Margaret (Miss), Northwich, Cheshire.
Tory: Edmund Charles.
Tranter: James Hugh.
Travis: Alan.
Turnbull: Denis Lawson, West Bridgford.
Turner: Clifford Wilfred, Bideford.
Wark: William Ramsay, Kilmarnock.
Watson: Kenneth James Victor.
Whalley: James, Leeds.
Whinnett: John.
Whitby: George Frederick, M.B.E. (Major R.E.).

AS LICENTIATES (14)

Acton: George Raymond, Worcester.
Carvell: Robert Charles, Perth.
Cradick: Harold George, Poole.
Entwistle: Clive.
Forsythe: Walter Welsh, Norwich.
Giles: Rex Hortin, Willenhall, Staffs.
Gwynne: Patrick.
Hatt: Albert Henry.
Morrison: Arthur Bain, Edinburgh.
Pennison: Roy.
Petrie, Adam Macfarlane, Juba, Sudan.
Ritchie: James, Newcastle, Staffs.
Shaw: Ronald Forbes.
Zimmermann: Sydney, Dundee.

ELECTION: 8 JULY 1947

An election of candidates for membership will take place on 8 July 1947. The names and addresses of the candidates, with the names of their proposers, found by the Council to be eligible and qualified in accordance with the Charter and Bye-laws, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Saturday 5 July 1947.

The names following the applicant's address are those of his proposers.

AS FELLOWS (6)

Brandt: Jack Bernard, M.T.P.I. [*A* 1933], 4 Westwood Road, Southampton; 'Huntersmead', Hunters Hill, Colbury, near Southampton. B. L. Sutcliffe, E. R. Taylor and G. A. Jellicoe.

Butler: Bertram [*A* 1922], 14 Waterloo Road, Wolverhampton; Penn, Wolverhampton. J. B. Surman, W. J. Brown and A. T. Butler.

Hiorns: Percival Theodore [*A* 1921], 5 Rutland Gate, Knightsbridge, S.W.7; 'Bardowie', 184 Nether Street, Church End, Finchley, N.3. Major F. C. Webster, J. H. Markham and F. R. Hiorns.

Honeyman: James Maclaren, Dip. Arch. (Glasgow) [*A* 1919], 92 Bath Street, Glasgow, C.2; 41 Queensborough Gardens, Glasgow, W.2. A. G. Henderson, W. J. Smith and T. J. Beveridge.

And the following Licentiates who are qualified under Section IV, Clause 4 (*c*) (ii) of the Supplemental Charter of 1925 :—

Jury: Sydney Charles, Shire Hall, St. Paul's Square, Bedford; 'Parc Vean', 18 Beverley Crescent, Bedford. W. R. Steel, S. H. Loweth and A. C. Bunch.

White: Richard Wakeham, County Architect's Dept., Middlesex County Council, 20 Vauxhall Bridge Road, S.W.1; 30 Hartington Road, W.4. W. T. Curtis, C. D. Andrews and T. F. Hawkes.

AS ASSOCIATES (13)

The name of a school or schools after a candidate's name indicates the passing of a recognized course.

Ansell: Harry Benson [Final Exam.], 6 Maple Close, Elms Rise Estate, Botley, Oxford. G. R. Hutton, L. J. Ashby and H. W. Smith.

Cunningham: William Paul [Special Final Exam.], 35 West Side, Clapham Common, S.W.4. T. E. Scott, Charles Blythin and George Fairweather.

Davison: Philip Leonard (Univ. of Sheffield: Dept. of Arch.), 'Town End Cottage', High Bradfield, near Sheffield. Stephen Welsh, W. G. Davies and H. B. Leighton.

Gray: James Ian Scott [Final Exam.], 3 Belgrave Terrace, South Shields. W. B. Edwards, R. H. Morton and T. A. Page.

Holloway: Sidney Malvern [Final Exam.], 'The Holme', Post Street, Godmanchester, Huntingdon. T. H. Longstaff, E. M. Parkes and Walter Rosser.

Katona: Ervin [Special Final Exam.], 28 Langford Court, N.W.8. Alister MacDonald, Stanley Hamp and John Hughes.

Lewis: Eluned (Miss) (Victoria Univ., Manchester: Sch. of Arch.), 114 Framingham Road, Brooklands, Sale, Cheshire. Prof. R. A. Cordingley, W. A. Johnson and F. L. Halliday.

O'Callaghan: James Oliver Plunkett, B.Arch. (Univ. Coll., Dublin, Ireland: Sch. of Arch.), 24 Quay Street, Dundalk, Co. Louth, Eire. J. V. Downes, Vincent Kelly and S. S. Kelly.

Payne: Sylvia Mary (Miss) (The Poly., Regent Street, London: Sch. of Arch.), 51 Watling Street, St. Albans, Herts. E. C. Scherrer, E. M. Fry and Miss J. B. Drew.

Smith: John Michael Austin, M.C. (Arch. Assoc., London: Sch. of Arch.), 17 Claremont Road, Bickley, Kent. David Stokes, L. H. Bucknell and R. E. Enthoven.

Sturt: Anthony Napier (Arch. Assoc., London: Sch. of Arch.), Lullingworth, Painswick, Gloucestershire. L. H. Bucknell, R. E. Enthoven and G. R. Dawbarn.

Whitelaw: Alexander Robertson [Special Final Exam.], 18 Crosslees Drive, Thornliebank, Renfrewshire. A. G. Henderson, W. J. Smith and T. J. Beveridge.

Young: Frank William [Final Exam.], Thirty, Brantwood Gardens, Enfield, Middx. H. M. Luyken, V. L. Nash and Joseph Addison.

AS LICENTIATES (22)

Blennerhassett: Francis Thomas, O.B.E. (Lieut-Col.), 18 Bennetts Hill, Birmingham; Kenilworth House, Station Road, Balsall Common, near Coventry. H. W. Hobbiss, W. T. Benslyn and S. J. Stainton.

Bouch: James Albert, 38 Kirkham Drive, Goddard Avenue, Hull. H. E. Horth, Geo. Williams and F. J. Horth.

Brown: Edward, c/o Messrs. Stewart and Hendry, 90 Fenchurch Street, E.C.3 ; 19 Laurel Way, Totteridge, N.20. H. D. Hendry, A. G. MacDonald and Niel Martin-Kaye.'

Challis: Frederick Edward Sewell, The Northmet Power Company, Northmet House, Cannon Hill, Southgate, N.14; 101 The Vale, Southgate, N.14. H. B. Challen, Eric Ambrose and L. D. Tomlinson.

Chapman: John Frank, F.S.I., 'Wreyland', Marine Drive, Saltdean, Sussex. H. T. Goodwin and applying for nomination by the Council under Bye-law 3 (*d*).

Chappell: Sidney William, c/o Messrs. Frank Matcham and Co., 34 Watford Road, Northwood, Middx.; 1 Gunnersbury Court, Acton, W.3. Applying for nomination by the Council under Bye-law 3 (*d*).

Cochrane: Hugh Frederick, 22 Great James Street, W.C.1; 4 South Parade, Bedford Park, W.4. Applying for nomination by the Council under Bye-law 3 (*d*).

Deedman: Eric Alfred, Borough Engineer's Dept., Metropolitan Borough of Stepney, Duval Street, E.1; 'Pantiles', White Hart Lane, Hockley, Essex. B. W. Stuttle, C. S. Nicholas and J. E. Dixon-Spain.

Foster: Ivor George, 18 Katharine Street, Croydon, Surrey; 52 Boswell Road, Thornton Heath, Surrey. Victor Wilkins and the President and Hon. Sec. of the S.E.S.A. under Bye-law 3 (*a*).

Hudson: Henry Rowland, Superintendent of Works and Buildings, Leeds Public Health Dept., 125 Beckett Street, Leeds, 9; Linton, 18 Lister Hill, Horsforth, near Leeds. W. H. King, N. R. Paxton and R. S. Shapley.

Jelinek-Karl: Rudolph, 22 Chancery Lane, W.C.2; 74 Holland Park, W.11. W. W. Wells-Coates, David Stokes and R. E. Enthoven.

Land-Reeves: Geoffrey, Ministry of Works, Abell House, Westminster; Guildings, Itchingfield, near Horsham, Sussex. C. G. Mant, W. F. Granger and W. A. Rutter.

Levi: Jestyn Ieuan, Assistant Architect, Pontardawe R.D.C. Council Offices, Pontardawe; 'Sherwood', Glais Road, Birchgrove, Swansea. E. D. Jones, Edwin Smith and W. J. Howell.

Margot: Charles Edward, Architect's Dept., Walthamstow Borough Council, 38 Rosebery Road, Muswell Hill, N.10. Edwin Williams, R. Wilson and B. H. Toms.

Marriner: Eric Montagu, 'Batemans', 18 Bennetts Hill, Birmingham, 2; 17 Stonehouse Road, Sutton-Coldfield. H. W. Hobbiss, W. T. Benslyn and S. J. Stainton.

Nunweek: Robert Wyndham, Mazda Buildings, Campo Lane, Sheffield; Whirlow Rise, Whirlow Lane, Sheffield, 11. T. H. Robinson, W. C. Fenton and H. B. S. Gibbs.

Savage: Cecil Henry, c/o Messrs. Buckland and Haywood, Norwich Union Chambers, Congreve Street, Birmingham; 203 Jayshaw Avenue Gt. Barr, Birmingham, 22. H. T. Buckland, William Haywood and applying for nomination by the Council under Bye-law 3 (*d*).

Sharp: Harold William, 58 Charlwood Road, Putney, S.W.15; Douglas Rowntree, A. F. G. Stanham and Raglan Squire.

Targett: Cyril Henry, County Council of Middlesex, 20 Vauxhall Bridge Road, S.W.1; 182 Shepherds Lane, Dartford, Kent. H. W. Burchett, T. F. Hawkes and G. L. D. Hall.

Wheal: Isaac Alfred Howard, Ministry of Works, S.W.1; 32 Therapia Lane, West Croydon, Surrey. Robert Cromie, W. F. Granger and F. Sutcliffe.

Wood: John Henry, P.A.S.I., Architect's Dept., Salop County Council; 'Riversdale', Hunter Street, Mountfields, Shrewsbury. A. G. Chant, Cecil Masey and A. S. G. Butler.

Woodrow: Thomas Edward, Messrs. Whinney, Son and Austen Hall, 37 Norfolk Street, Strand, W.C.2; 110 Paxford Road, North Wembley, Middx. H. A. Hall, H. C. D. Whinney and J. H. Hollier.

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than for posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. A. J. Addison [*A*] has resigned his post as Senior Architectural Assistant to the Borough of Tottenham, having been appointed Chief Architectural Assistant to the Borough of Heston and Isleworth.

Mr. Colin St. Clair Oakes [*A*] has been appointed Principal Architect to the Imperial War Graves Commission for the South-East Asia area. Mr. Oakes is a partner in the firm of Sir Aston Webb and Son.

Mr. J. Malcolm Scott [*A*] has been appointed Head of the Department of Architecture and Building at the Municipal College, Southend-on-Sea.

Mr. W. I. Watson [*A*] of Belvedere Road, Taunton, has been appointed to a post in the Colonial Service in Northern Rhodesia. He was formerly on the architectural staff of the Somerset County Council.

Mr. Peter R. Whiston [*A*] has been appointed Chief Architect to the Scottish Special Housing Association Limited, 19 Palmerston Place, Edinburgh, 12.

PRACTICES AND PARTNERSHIPS

Mr. Robert C. Carvell [*L*] has commenced practice at 3a Charlotte Street, Perth, and will be pleased to receive trade catalogues, etc.

Mr. L. W. Elliott [*A*] has commenced practice at 6 Mason's Yard, Duke Street, St. James's, London, S.W.1, and will be continuing his association with **Mr. Denis Clarke Hall** [*F*].

Mr. A. Victor Farrier [*A*], for the past 4½ years Assistant Director of Works and latterly Assistant Chief Architect, Ministry of Works, has recommenced private practice at 7 Thornton Hill, Wimbledon, S.W.19 (Wimbledon 2865), under the title **Harold Bailey & Farrier.**

Mr. George R. Fordham [*A*], since being released from war service, has entered into partnership with Mr. Gordon O'Neill [*F*]. They will practise under the style of **O'Neill & Fordham** at 65 Springfield Road, Chelmsford, Essex (Chelmsford 3004) and at 21 St. John's Avenue, Chelmsford.

Messrs. Gray Young, Morton & Young [*F*/*A*], Prudential Building, 332–340 Lambton Quay, Wellington, New Zealand, have taken into partnership Mr. Ian F. Calder [*A*]. They will continue under the style of **Gray Young, Morton & Young** at the same address.

Mr. A. E. J. Hastings [*A*] has joined Mr. A. Stanley Roberts [*F*] in partnership, and they will practise as **Roberts & Hastings** [*F*/*A*] at 19 Hanover Square, London, W.1. (Mayfair 6146).

Mr. E. G. Howkins [*L*], Senior Architectural Assistant to the Borough Valuer, Croydon Corporation, 71 Park Lane, Croydon, would be pleased to receive trade catalogues, information sheets, etc., particularly relating to housing, flat conversions, children's nurseries, and old people's homes.

Mrs. H. Betty Ingleby has removed to 81 High Street, Thame, Oxon, and will be pleased to receive trade catalogues, etc. at that address.

Mr. Ian Jeffcott [*L*], having resigned his appointment as Exhibition Architect to Associated Newspapers Limited, has resumed private practice at 14 Airlie Gardens, Kensington, London, W.8 (Park 5003).

Mr. Peter McG. Corsar [*A*] has commenced practice at 67–69 Commercial Road, Portsmouth (Portsmouth 74843), and will be pleased to receive trade catalogues, etc.

Messrs. Ramsey, Murray & White [*F*/*F*] of 32 Wigmore Street, London, W.1, have taken into partnership Mr. Basil Ward [*F*]. They will continue to practise under the name of **Ramsey, Murray & White.** Their telephone number is Welbeck 1409.

Change of name: **Mr. John C. Jones, M.A.** [*A*] has by Deed Poll now changed name from Jones to Jevons. Mr. Jevons will continue to practise at The Old Brew House, Winsley, Nr. Bradford-on-Avon, Wiltshire.

Mr. R. E. Richardson [*L*] of 261 Benton Road, Long Benton, Newcastle-upon-Tyne, who holds an appointment with the Ministry of Works, will be pleased to receive trade catalogues, etc. at his private address.

Mr. Victor C. L. Saunders [*A*] and **Mr. M. K. Reiss-Smith,** 70 Hill Park Crescent, North Hill, Plymouth (Plymouth 5469), announce that they have taken their chief assistant, Mr. S. Roy Northmore [*L*] into partnership. The firm will continue to practise under the name of **Saunders and Reiss-Smith** at the above address.

Mr. Thomas P. Tinsley [*L*], on retiring from the office of District Surveyor for Greenwich and Deptford, has resumed private practice at 94 Well Hall Road, Eltham, London, S.E.9 (Eltham 6383), and will be pleased to receive trade catalogues, etc.

CHANGES OF ADDRESS

Messrs. Bailey and Walker [*A*], whose temporary address at 35 New Broad Street, London, E.C.2, was announced in the May JOURNAL, have, from 2 June 1947, moved to 7 Victoria Street, London, S.W.1 (Abbey 5405). The country offices at Peet Tye Cottage, Mersea Road, Peldon, Colchester, Essex, and 'Mayfields', Massetts Road, Horley, Surrey, will continue as before.

With effect from 30 May, **Mr. Charles W. Fox** [*F*] will practise from 22 Parkway, Welwyn Garden City, Herts (Welwyn Garden 3967–740).

Mr. J. Tenniswood Lupton [*A*] has removed to 14 Clarges Street, Mayfair, London, W. (Regent 2820).

Mr. Denis Clarke Hall [*F*] has now moved to 6 Mason's Yard, Duke Street, St. James's, London, S.W.1.

Mr. S. Morris [*L*] and **Mr. H. F. Riley** [*L*], practising under the style of **Morris and Riley,** have removed from Orleans House, Edmund Street, Liverpool 3, to Eskrigge's Buildings, 16/18 Hackins Hey, Liverpool 2. The telephone number (Central 8325) remains unchanged.

Mr. Charles C. Spence [*A*] and **Mr. Geoffrey L. Price** [*A*] have removed from 15 Haldane Terrace, Newcastle-upon-Tyne, 2, to 26 St. Mary's Place, Newcastle-upon-Tyne, 1. (Newcastle 23860.) They will be pleased to receive trade catalogues, etc.

Mr. R. B. Thomson [*A*] has removed from 15 Beehive Road, Sheffield 10, to No. 2 Flat, Endcliffe Croft, Endcliffe Vale Road, Sheffield 10.

Mr. L. D. Tomlinson [*F*] of Quadrant Arcade, Romford, has changed his Boston office from 2 New Street, Boston, Lincs, to Pilgrim House Chambers, Boston, Lincs, at which address his district manager, **Mr. J. S. Leslie** [*L*] will be pleased to receive trade catalogues, etc.

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Assistant wanted, with view to partnership, in Yorkshire member's office. Must be fully qualified and some capital desirable. Reply, with details of qualifications, to Box 49, C/o Secretary, R.I.B.A.

Associate (39) with personality and tact requires position of responsibility leading eventually to partnership. Southern Counties or South West. 20 years' varied experience, specialist in hotel, brewery and cinema work. Reply Box 54, C/o Secretary, R.I.B.A.

Member wishes to dispose of his share in a busy practice in West Country owing to ill-health. Associate with quantities experience desired. Reply Box 55, C/o Secretary, R.I.B.A.

Old-established firm of London architects, with offices on Victoria Embankment, have opening for Associate to join them as Assistant with view to partnership. Reply Box 53, C/o Secretary, R.I.B.A.

Young member with sound practical experience wishes to enter established practice in London area. Would be pleased to consider partnership or position leading to early partnership. Reply Box 56, C/o Secretary, R.I.B.A.

WANTED AND FOR SALE

Associate preparing for TPI Final wishes to purchase or borrow following text-books: (1) Ancient Town Planning—Haverfield, (2) Art of Town Planning—Lanchester, (3) Mediæval Town Planning—Tout, (4) Site Planning in Practice—Thompson, (5) Development of Building Estates and Town Planning—Howkins. Reply Box 51, C/o Secretary, R.I.B.A.

For sale by widow of deceased member: Architect's frame table, 2 ft. 11 ins., also several text-books (illustrated) published by Batsford, Murray, Sampson Low and Lockwood on decoration, Mediæval and Gothic architecture, house drainage and building construction. Particulars from Box 50, C/o Secretary R.I.B.A.

ACCOMMODATION

Large office to be sub-let, about 25 June. Possesses excellent light, situate in Bloomsbury Square. Reply Box 52, C/o Secretary, R.I.B.A.

Your Child's 21st Birthday

An admirable scheme for putting aside savings to provide a gift of lasting value to celebrate the occasion of your child's 21st birthday is available through the medium of an assurance company. To obtain the fullest advantages it is essential that a start be made in the earliest years of your child's life.

Please write for full particulars from the Secretary, A. B. S. Insurance Department, 66 Portland Place, London, W.1 (Telephone: WELbeck 5721). Quote: RE/J when replying.